HALO

Dr. Halo IV

Paint & Imaging Pak

MEDIA CYBERNETICS™
The Imaging Experts

- Enhanced Paint & Image Editing
- File Viewer with Format Converter
- High Quality Printer Output
- Super VGA Support

Dr. Halo IV Paint and Imaging Pak
Version 1.0

Guide To Operations

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Introduction to Dr. Halo IV

Welcome to the latest release of the popular Dr. HALO paint package. In 1984 Dr. HALO was introduced to demonstrate the power and flexibility of the HALO graphics toolkit. At the time, we had no idea Dr. HALO would become one of the world's most popular paint packages with over three million users to date. Over the past six years we have released two major upgrades. In each upgrade, we've listened to the concerns and desires of our users for insight into the features that would increase their enjoyment of Dr. HALO. The Paint and Imaging Pak adds three new programs to the Dr. HALO family in addition to improving the three that were already in the package. We hope you find this version both useful and fun.

Dr. HALO now has sophisticated palette manipulations for today's high resolution graphics cards, as well as enhanced printing and increased device support. In the Presents a slide show presentation program, we added special effects like fades to give your presentations more power. The Grab screen capture utility incorporates support for super VGA cards and the ability to select file formats for saving the captured image.

The three new programs include Viewer, the Bit Font Editor, and the PIC Converter. The Viewer allows you to import and export images from many popular file formats including 24-bit true color images as well as adjust brightness, contrast, and gamma correction. The Bit Font Editor lets you customize existing fonts or create new fonts for use with Dr.

HALO IV. The PIC Converter transfers older Dr. HALO PIC files into device independent .CUT or .PCX files for use with Dr. HALO IV and many other graphics package.

Dr. Halo IV Paint and Imaging Pak

The Component Parts

Dr. Halo IV Paint and Imaging Pak is a family of related programs that work together to create and powerfully manipulate many different types of images. These programs are as follows:

- **Dr. Halo IV** - Create and edit images and other artwork with this powerful graphics program.

- **Viewer** - Use this program to read and write images types that cannot be read or written by Dr. Halo IV. In Viewer, advanced image processing, such as brightness, contrast, and gamma manipulation can be applied and palettes can be optimized. Also, images can be cropped. They can then be converted to image types readable by Dr. Halo IV. Image types that can be read by **Viewer** but not Dr. Halo IV are TIFF, 24-bit PCX, TGA, and BMP. Image types that can be written by **Viewer** but not Dr. Halo IV include TIFF, 24-bit TGA, BMP, MSP, and IMG.

- **Bit Font Editor** - Use this editor to edit existing fonts or generate your own fonts, which can then be used in Dr. Halo IV.

- **Grab** - "Capture" graphics created on any supported graphics card by other graphics packages, including Lotus 1-2-3, Autocad, and other computer-aided design and business packages. Dr. Halo IV can then be used to enhance those captured images.

- **Presents** - Organize images created with Dr. Halo IV into a slide show presentation or a series of images to be queued for batch printing.

- **PICCVT** - Convert PIC-type files created with earlier versions of Dr. Halo into device-independent CUT or PCX files.

New Features in Dr. Halo IV

Dr. Halo IV is the successor to Dr. HALO III. It has many new features, as well as improvements that enable it to stay ahead of changing hardware and software technology. Some of the new features include:

- **Gradients** - Choose foreground and background colors and Dr. Halo IV can fill a circle, square, or the entire background so that it starts with the first color and gradually blends to the second. Combine this with AND Cut and Paste masking to generate gradient objects of any shape, including text. This is most effective on graphics devices that handle a large number of colors or shades of gray.

- **Color Controls** - Selecting colors for drawing, filling, exchanging, and erasing, etc. has been both expanded and made easier to use.

- **Improved Virtual Page** - More work can now be done directly on the virtual page. Virtual Page Mode gives you the ability to use the display screen as a working window into a page that is larger than the actual screen size. In addition, much larger pages are now possible.

- **Improved Memory Handling** - Dr. Halo IV makes use of whatever memory is available (base, extended, or expanded), and will even swap to the hard drive to allow virtual page to be used. If virtual mode is enabled, Undo will always have enough memory to function.

- **Palette Editing** - The ability to edit each color of the palette (or the entire palette) has been both expanded and made easier to use. (Palette editing is not available on some graphics cards)

- **Improved Font Capabilities** - Dr. Halo IV supplies a wide range of fonts, most of which support the international character set. You also have the ability to modify or create fonts using the accompanying **Bit Font Editor** utility.

- **Advanced Printer Capabilities** - Select from a variety of halftones to expand the ability of your printer to portray images.

- **New File Format** - The ability to read and write the PCX file format adds compatibility with desktop publishing programs.

- **GRAB Improved** - You can now select between the device-independent CUT or PCX files and place them in the directory of your choice.

- **Drivers Added and Improved** - Dr. Halo IV is compatible with a large number of graphics, mouse, and printer drivers.

Other Advanced Features

- **Curve Fitting** - the capability to automatically draw a curved line between plotted points.

- **Color Swapping** - From within the Color Swap menu, you can re-color the entire screen or any portion.

- **Image Rotation** - the ability to rotate images in 90 degree increments and to flip images to create mirror images.

- **Lasso** - The ability to cut and paste or rubberstamp a user-defined area.

- **Non-Destructive Image Movement** - the ability to move a portion of an image around the screen without destroying the screen area through which it passes.

- **On-Screen Help** - At the touch of a button, you can access help for each selectable function.

- **Symbol Creation** - the capability to create symbols to be used as hatch styles for logos and to store them in a symbol library for future use.

- **Snap Grids** - the capability to place an invisible grid on the screen for "lining up" charts and graphs.

- **Text Composition** - the ability to directly input text files in a selected font, style, and size.

Use of This Manual

This manual is a guide to operating the Dr. Halo IV system. It serves as an Installation Manual, Tutorial, and Reference Guide in one package. Headers, footers, and the index are as descriptive as possible. Few people manage to stay with a long tutorial, so this manual has three short ones. This guide to operations will help you get started and then, as you find questions, the manual will provide answers quickly and easily.

The Dr. Halo IV Guide to Operations chapters are as shown below:

Chapter 1. Introduction - This chapter. A brief description of the Dr. Halo IV system and then a discussion of how to use this manual.

Chapter 2. Installation - How to install the entire Dr. Halo IV system. The chapter also discusses items you should be aware of before installation, such as converting old PIC files, memory usage and the option of using a virtual page.

Chapter 3. How To Get Started - If you hate tutorials and hate to read manuals, this chapter may be enough to get you started with Dr. Halo IV. It describes how to use the mouse to issue commands, how to use HELP and UNDO, how to access submenus, how to change colors (and palette), and how to change the width of your tools. The information in this chapter is not detailed, but it is enough to get you started; for details, see Chapters 5 through 10 and the appendixes.

Chapter 4. Dr. Halo IV and Colors - One of the great strengths of Dr. Halo IV is the control it gives you over colors. If you have a graphics device with a programmable palette, Dr. Halo IV has simple tools that allow you to customize palettes. This chapter describes how to use colors in Dr. Halo IV and how to customize palettes.

Chapter 5. Tutorials - Three simple tutorials to make you feel comfortable working with Dr. Halo IV . The tutorials are: how to draw a simple cake, how to annotate a screen from **Grab,** and how to use a gradient.

Chapter 6. Commands - Detailed reference source describing each of the Dr. Halo IV commands.

Chapter 7. Grab Utility - How to **Grab** graphics screens shown on your monitor by other programs.

Chapter 8. Viewer Utility - How to view and convert to and from file types Dr. Halo IV cannot otherwise access.

Chapter 9. Bit Font Editor - How to create new fonts for Dr. Halo IV.

Chapter 10. Presents Utility - How to create slide shows or perform batch printing.

Chapter 11. PICCVT - How to convert PIC files created by previous versions of Dr. Halo to CUT or PCX files.

Chapter 12. Tips and Tricks - Suggestions for getting the most out of the Dr. Halo IV system.

Appendix A. System Setup - Changing graphics modes, printers, print parameters, virtual page options, displaying coordinate options, cursor size, file search paths, etc. This appendix describes changing these options via the setup utility and also by editing the configuration files.

Appendix B. Initial Fonts - The provided fonts are shown.

Appendix C. - Supported graphics devices, printers, and locators listed.

Appendix D. - Devices requiring special considerations are described.

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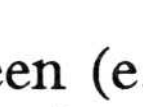
Conventions Used In This Manual

It is assumed that if you are using Dr. Halo IV with a locator device, such as a mouse, you are familiar with that device. Although many locator devices have more than two buttons, the most common locator device is the two-button mouse.

Within this manual, the term "mouse" is used to refer to any locator device, and the terms "left button" and "right button" are used frequently. If you are unsure which buttons on your locator are the so called "left"

and "right" buttons, check with the documentation that came with your locator. All common locators can emulate a two-button mouse.

Icons appearing on the Dr. Halo IV initial screen (e.g. ) are shown with a square around them. Submenu icons (e.g.) are shown without a bordering square.

Instead of using the terms "<Enter> key" or "<Carriage Return> key," the graphic symbol "↵" is used throughout this manual.

Otherwise, DOS conventions are used. For describing a file, these (standard DOS) conventions are as shown below:

[<*dr*>:][<*path*>]<*filename*>[.<*ext*>] [<*para*>] [<*para*>] [...]

where

- "*dr*" refers to the disk drive.
- Square-bracketed ("[]") items are optional.
- Angle-bracketed ("<>") items are keystrokes or strings that must be entered by the user.
    - Italicized angle-bracketed items are strings determined by the user (e.g. for <filename> you enter the name of a file of your choice.
    - Non-italicized angle-bracketed items are single-keystroke or multi-keystroke combinations that must be entered (e.g. for <Ctrl-Alt-G> hold down the "Ctrl" key and the "alt" key simultaneously, and press the letter G key).
- "<*ext*>" refers to the file extension.
- "<*para*>" refers to the parameters that may be passed.
- Ellipses (". . .") mean that additional like items may be used.

Refer to your *DOS Reference Manual* for more information.

Installation and Configuration

Note To Users of Earlier Versions

The PIC file type, which was used by earlier versions of Dr. Halo and HALO DPE, is not used by Dr. Halo IV. The PIC file type is device dependent, meaning that a PIC file may not display correctly or at all on a graphics device (or device driver) other than that used to create the file.

The Dr. Halo IV system comes with a utility for converting PIC files to CUT or PCX files. This utility requires use of the device driver that was employed to create the PIC files it will convert.

Earlier Version Floppy Users

Dr. Halo IV requires a hard drive, but if you are running your earlier version of Dr. Halo from a floppy drive, do not discard the diskettes with which you run that version. Once you have installed Dr. Halo IV, you may wish to copy the file **piccvt.exe** (found in the directory in which Dr. Halo IV is installed) to those diskettes so that you can convert your PIC files at any time to PCX or CUT.

Earlier Version Hard Drive Users

If you are running your earlier version of Dr. Halo from a hard drive and do not wish to delete that earlier version when you install Dr. Halo IV, you may wish to copy the file **piccvt.exe** (found in the directory in which

you installed Dr. Halo IV) to the directory in which the earlier version is installed so that you can convert your PIC files at any time to PCX or CUT.

If you do wish to delete your earlier version when you install Dr. Halo IV, do one of the following depending on how tight you are for space on your hard drive and whether or not you expect to occasionally need PIC files archived onto floppy diskettes: either

- Install the **piccvt** utility into the directory of your earlier version of Dr. Halo. To do so, place disk 1 in drive a: and type **a:install.** From the installation menu, choose "Selective install". Then select "Install a Specific File". When you are prompted for the filename to retrieve, type **piccvt.exe**. Enter the pathname for the older version of Dr. Halo. Follow the instructions that then appear on screen. Use **piccvt** to convert all of your PIC files to CUT or PCX. Then delete the earlier version.

or,

- Install Dr. Halo IV without yet deleting your earlier version. Once both are on your system, copy the following files from the directory containing the earlier version to your Dr. Halo IV directory: HALO.CNF and all files having the filetype DEV (e.g. use the command "COPY *.DEV \DRHALO4↵"). Once these files have been copied, you can then delete your earlier version.

See Chapter 11 for a description of **PICCVT**. Note also that you can enter the command **PICCVT** with no parameters (i.e. PICCVT↵") for information on how to use **PICCVT.**

What You Need

To run Dr. Halo IV you need the following:

- An IBM PC, XT, AT or compatible with a hard disk, *or*
- An IBM Personal System/2, Model 30, 50, 60, or 80

- A minimum of 640K of memory (extended or expanded memory is optional but recommended)

- IBM PC DOS, Release 3.1 or later

- A Dr. Halo IV supported graphics device, pointing device, and (optionally) printer.

The Dr. Halo IV Virtual Page

During the Installation/Configuration process, you will be asked whether you wish to use the Virtual Page (also known as the Virtual Raster Image, or VRI) and, if so, how you wish it to be set up. The main purpose of the virtual page is to allow a workspace area larger than the screen size.

If you configure your system to use the virtual page, a copy of the entire painting area is stored by Dr. Halo IV (the painting area can be the size of what you see on the screen or more). Dr. Halo IV attempts to put the virtual page into extended or expanded memory or, as a last resort, the hard disk.

Note that you can invoke Dr. Halo IV by entering the filename on the DOS command line (i.e. >DRHALO <*filename*>↵). If a virtual page is enabled, it will assume the size of the image or the screen size, whichever is larger. If no VRI is enabled, the image will be truncated to screen size.

The Virtual Page and Undo

The Dr. Halo IV **Undo** feature requires the virtual page to be enabled. (**Undo** is the ability to cancel the most recently issued command.) If you do not plan to work on images larger than the size of your screen, you may wish to set up a virtual page with the same size (i.e. horizontal and vertical resolution) of your screen just to enable **Undo**. However, enabling the virtual page may slow up execution of Dr. Halo IV commands considerably, especially on a slow computer or if the virtual page requires disk storage.

Installing the Dr. Halo IV Paint and Imaging Pak

The Paint and Imaging Pak install program is intended to be useful the first time you install Dr. Halo IV and many times after that. If you decide that there are parts of the Dr. Halo IV Paint and Imaging Pak that you do not regularly use, you can delete them from your system and then, as you need pieces, you can restore just the pieces of the Paint and Imaging Pak with Install. You can also install just one file (a particular font or screen driver, perhaps).

To install the Dr. Halo IV Paint and Imaging Pak, or any part of it, on your system, put diskette number one in your diskette drive and, at the DOS command line enter:

A:INSTALL↵

Then follow the directions in the series of menus that allow you to choose what parts (some or all) of the Paint and Imaging Pak you would like to install on your system and what drives/directories you would like them to be installed into. The menus contain all directions you need and you can also press the <F1> key for additional help.

If You Are Short of Disk Space

If you install the entire Dr. Halo IV Paint and Imaging Pak, you will be using approximately 3 Megabytes of hard drive space. This includes many drivers for graphics devices and monitors you most likely will not need. It also includes a great number of fonts, which are rather large files. If you are short on hard drive space, you may wish to sacrifice some of the fonts.

Note that in order to run the tutorials in Chapter 5 of this manual, you must install, at the very least, Dr. Halo IV, **Viewer,** and **Grab.**

Configuring Your System

All parts of the Dr. Halo IV Paint and Imaging Pak are configured through the **Setup** program. However, if you have a tablet, TIGA board,

a display adapter with an aspect ratio not 1.0, and/or are using the keyboard as a mouse, see Appendix D after you run Setup.

To run Setup (and configure your system), first make sure are in the Dr. Halo IV directory. If you are not, at the DOS prompt enter **cd \drhalo4**↵ (assuming that during the Install process you put Dr. Halo IV in the default directory). Then enter the following:

SETUP↵

The **Setup** program contains a series of menus that allow you to choose what parts of the Paint and Imaging Pak you wish to set up, what devices you wish to have set up for each part, and some options that are specific to each part.

The first time you use the program, it is recommended that you use the default selections wherever possible. Note that context sensitive help is available at any time by pressing the F1 key.

Note that in order to run the tutorials that appear in Chapter 5, you must configure Dr. Halo IV, **Grab,** and **Viewer** with the same graphics device driver.

For each separate program in the Paint and Imaging Pak you configure, **Setup** writes a configuration file <*filename*>.CNF, where <*filename*> is the string you type to start the program. The CNF files and the strings used to start the programs are as follows:

PROGRAM	CNF FILE	STRING
Dr. Halo IV	drhalo.cnf	[<*dr*>:][<*path*>]drhalo [<*filename*>][.<*ext*>] [<*para*>] [<*para*>]...↵
Viewer	viewer.cnf	[<*dr*>:][<*path*>]viewer [-?]↵
Presents	presents.cnf	[<*dr*>:][<*path*>]presents [<*para*>] [<*para*>]...↵
Grab	grab.cnf	[<*dr*>:][<*path*>]grab [<*para*>] [<*para*>]...↵
Bit Font Editor	bfeditr.cnf	[<*dr*>:][<*path*>]bfeditr [-?]↵
PICCVT	halo.cnf	[<*dr*>:][<*path*>]piccvt [<*filename*>][<*filename*>][<*para*>]...↵

See Appendix A for a detailed explanation both of the configuration options that go into the CNF files and the parameters that can go on the

command line. The CNF options match the optional command line parameters.

Note that under nearly all circumstances, the Setup program automatically sets up all the options you need in the CNF files. In other words, you may never need to be concerned with the CNF files or with the options shown in brackets.

See Appendix D for configuring tablets and other devices that require special considerations.

Extended Memory

If your system has extended memory (not to be confused with expanded memory), Dr. Halo IV and Viewer can use it if and only if you have a memory manager program that can support the memory as either XMS (HIMEM.SYS) or EMS (EMM.SYS). If you are using HIMEM.SYS, we recommend that you use the one supplied with Microsoft Windows 3.0 or later, or the one supplied with MS-DOS 5.0.

Configuring a Swap File for Viewer

When the Viewer runs out of memory to store a workspace, it will use a swap file on your hard disk. The default location for the swap file is the root directory of the current drive. If the free storage capacity of the current drive is small, or if you have a RAM drive set up that you want to use for the swap file, you may want to change the swap file path. You can control the eventual location of the swap file using the TMP or TEMP environment variables. Usually you would add an environment variable by using a text editor to add a line to your system's AUTOEXEC.BAT file. When a swap file must be opened, Viewer searches first for TMP, then TEMP.

If the corresponding environment variable is found, the path specified will be used as the swap file path. The environment variable must specify a path, and must NOT be terminated with the backslash character. For instance, the first example of the line to be added to your AUTOEXEC.BAT file is valid, while the second is not:

set TMP=c:\tmp **(valid)**

set TMP=c:\tmp **(invalid)**

If you have installed Windows on your system, you probably already have a TEMP variable set in your AUTOEXEC.BAT. You can then locate the Viewer swap path elsewhere (if desired) by using the TMP variable.

Use with Microsoft Windows 3.0

The Dr. Halo IV Paint and Imaging Pak has been tested and found to work with Microsoft Windows. However, please note that **Grab** will not capture a screen *from* windows. To install any of the Paint and Imaging Pak programs follow these steps:

1. In the Windows Program Manager, create a new program group called Dr. Halo IV (see the Windows documentation for instructions on how to create a program group).

2. Select the program group and, using the File option on the Program Manager menu bar, select the New option. Select the Program Item from choices in the dialog box.

3. Enter the name of the application (for example, Dr. Halo IV) and the file name of the program (for example C:\DRHALO4\DRHALO.EXE).

4. Select OK.

Using 386 Enhanced Mode

If you are using Windows in 386 Enhanced mode, you may wish to create a PIF file (using the PIF Editor Accessory program supplied with Windows) to optimize the use of memory and improve drawing speed with Windows. We suggest the following settings for DRHALO.EXE and VIEWER.EXE (PIF files are not needed for the other programs supplied with the Paint and Imaging Pak):

Startup Directory:	C:\DRHALO4 (or wherever Dr. Halo is installed)
Display Usage:	Full Screen (Do not attempt to run any Paint and Imaging Pak program in a Window!)
EMS Memory KB Required:	0
EMS Memory KB Limit:	-1
XMS Memory KB Required:	0
XMS Memory KB Limit:	0
Video Memory:	High Graphics
Monitor Ports:	All Off
Emulate Text Mode:	Off

If you choose to use PIF files, remember to have Windows launch the PIF file (for example C:\DRHALO4\DRHALO.PIF) and not DRHALO.EXE if you want the PIF file to have any effect.

Icon Files

Supplied with the Paint and Imaging Pak are several Windows icon files (.ICO) that can be used to represent the various Paint and Imaging Pak programs. To use an icon file follow these steps:

1. Select the Paint and Imaging Pak program you wish to associate with a new icon file.

2. Using the File option on the Program Manager menu bar, select Properties.

3. Select Change Icon.

4. Change the entry for the icon file from the name of the program (for example C:\DRHALO4\DRHALO.EXE) to the name of the icon file (for example C:\DRHALO4\DRHALO.ICO)

5. Select OK.

Executing from other Drives and Sub-Directories

If you have used the **Setup** utility to configure the Dr. Halo IV Paint and Imaging Pak applications, you can run any of them from any disk or sub-directory on your system. To do so, add the Dr. Halo IV sub-directory to your PATH setting. Usually the PATH is set by a line in your AUTOEXEC.BAT file.

For example, assuming that you have installed the Paint and Imaging Pak in the default directory, and your PATH is currently set by a line in your AUTOEXEC.BAT file that reads

set path=c:\;c:\dos

you will want to change that line to the following:

set path=c:\;c:\dos;C:\DRHALO4

The C:\DRHALO4 sub-directory is shown above in capital letters for emphasis only. The PATH setting is not case significant.

If you then try to run one or more of the Dr. Halo IV Paint and Imaging Pak applications and instead another application runs, this probably means that the two applications have the same executable names. For instance, GRAB is a fairly common name for screen capture utilities. The simplest way to correct this (if you do not need to use the other application from sub-directories other than its own) is to move the Dr. Halo IV path earlier in the PATH setting (it is searched by DOS from left to right). If both applications are needed, any of the Dr. Halo IV applications EXCEPT VIEWER can be renamed. For instance, you could rename GRAB.EXE to DRGRAB.EXE:

ren c:\drhalo4\grab.exe c:\drhalo4\drgrab.exe

Dismissing the Sign-On Screen and other Messages

The Dr. Halo IV initial sign-on screen, as well as pop-up messages that are displayed, can be dismissed by either pressing any key on the keyboard or by pressing a mouse button.

Start-Up Palette

If Dr. Halo IV is started without an image file name specified on the command line, a default palette is loaded. This palette is contained in the file DEFAULT.PAL in the **drhalo4/images** directory. You may copy other existing palettes or write a new palette to this file (from within DRHALO) to change the default palette.

3. How to Get Started

Starting Dr. Halo IV

To start Dr. Halo IV, at the DOS prompt enter the following:

```
DRHALO↵
```

After the Dr. Halo IV logo, the initial Dr. Halo IV screen appears. An annotated version of that screen is shown below:

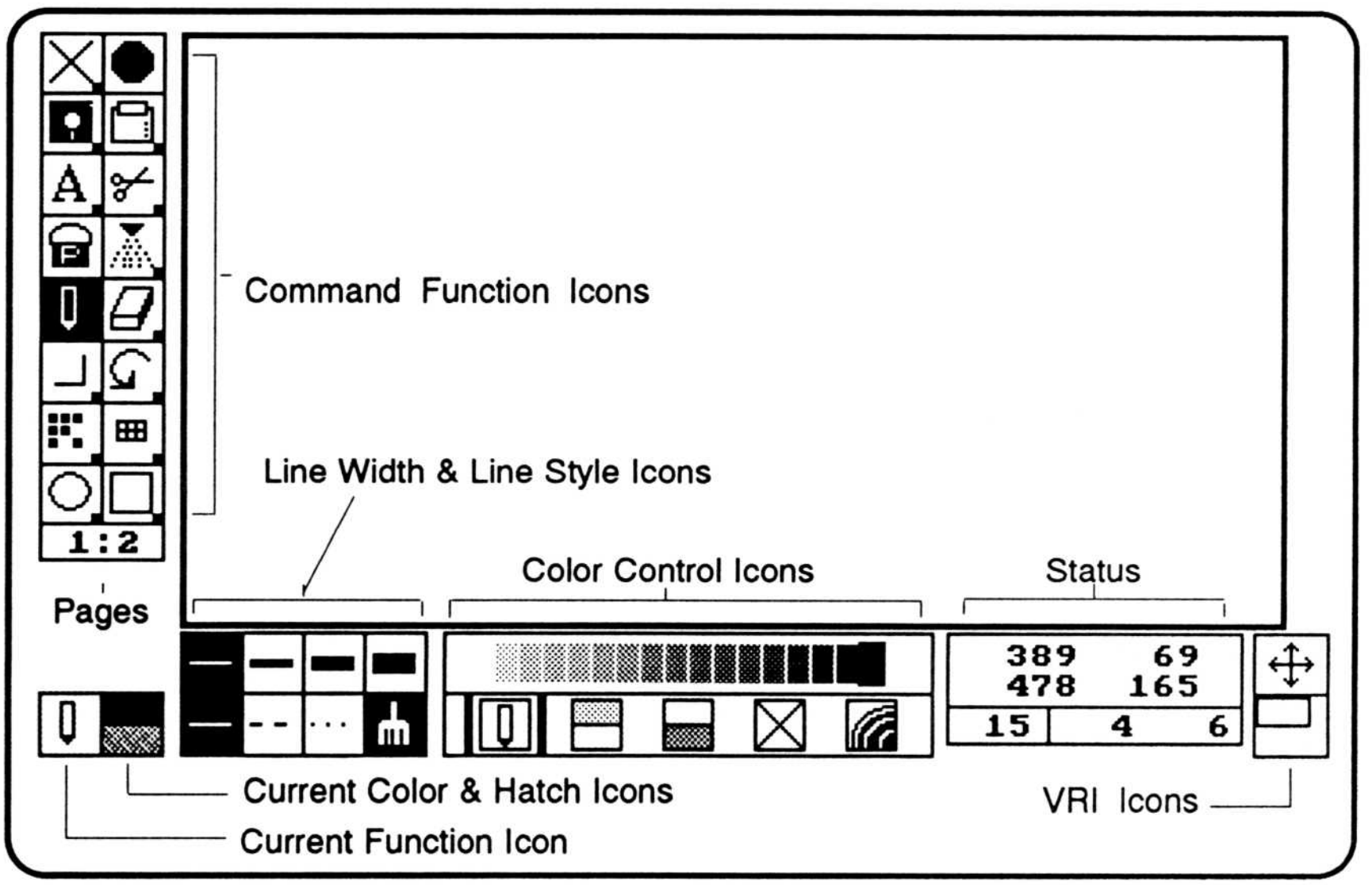
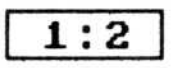


Figure 3-1. Initial Dr. HALO IV Screen

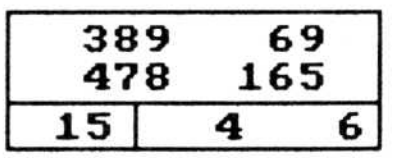
The initial Dr. Halo IV screen displayed on your monitor may differ from that shown in Figure 3-1, depending on your computer system's configuration and your choices during the installation procedure.

Differences include:

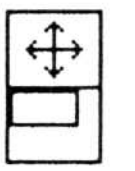
- Pages—If your graphics device does not display multiple pages, the Pages icon will not appear. (See Chapter 6 for more information about the Pages icon.)



- Status—If you choose not to implement the "Dr. Halo Status" feature in Setup, the box showing the coordinates of your cursor and current color indexes will not appear.



- VRI Icons—If you choose not to use a VRI (or if your VRI is the size of your display), these icons will not appear. (See Chapter 6 for more information about the VRI icons.)



- Color Control Icons—The number of colors in the color bar depends on your graphics display. Figure 3-1 is for a 16-color display. Several others are shown in the Figure 3-2 below:

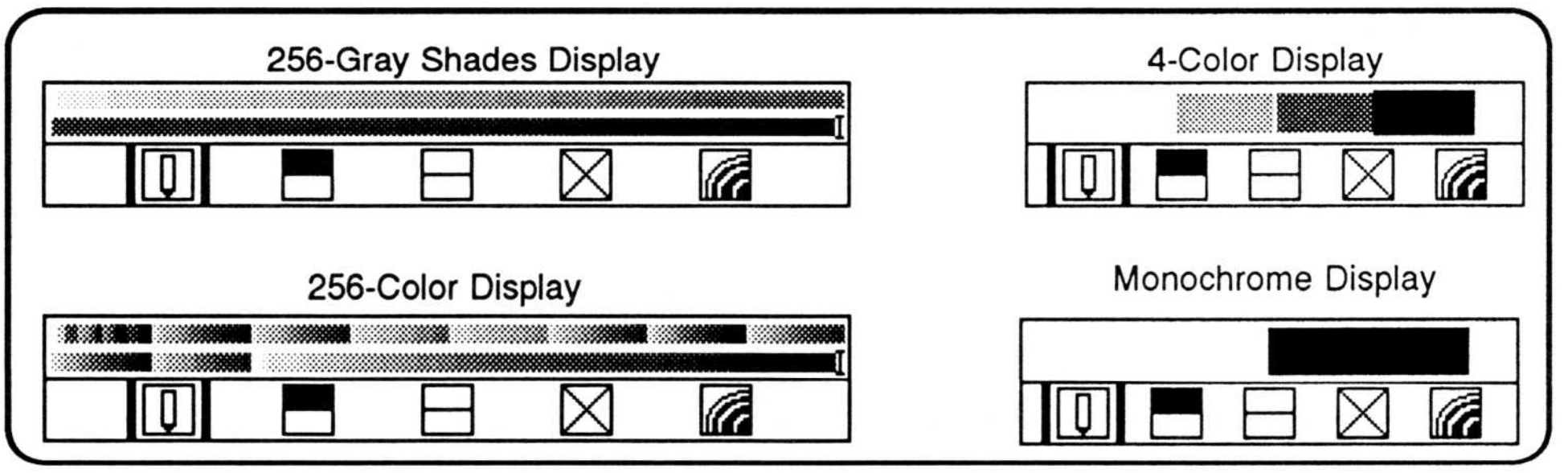


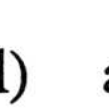
Figure 3-2. Several Graphics Display Color bars

Icons

The small pictures shown within squares on the screen are icons.

Selecting An Icon

To select an icon, press a mouse button with the cursor over the icon. For most icons, selecting the icon with the left mouse button has a different effect from selecting it with the right button. A description of these effects is presented in detail for each command in Chapter 6. Command Function icons that have a small square in the lower right corner bring up a submenu (known as a pop-up menu) when you click on the icon with the right button. When you click with the left button, you access that command's default function. Either button accesses the default function for Command Functions without the small square.

(Exit), (Paint), and  (Pencil) are the only Command Functions that do not have pop-up menus.

Note that the selected function is highlighted and a representation of the icon is placed in the current function icon (in the lower left corner of the screen). Selecting a color (or hatch pattern—to be described later) causes that color or hatch pattern to be placed in the current color and hatch icons. The current line style, line width, and brush are also highlighted.

Pop-Up Menus

To bring a Command Function's pop-up submenu onto the screen, select that Command Function with the right button. (Recall that only Command Functions with a small square in the lower-right corner of their icons have submenus.)

The pop-up menu appears in the top left corner of the screen, as shown in Figure 3-3 on the following page (for a description of the Print pop-up menu, see Chapter 5).

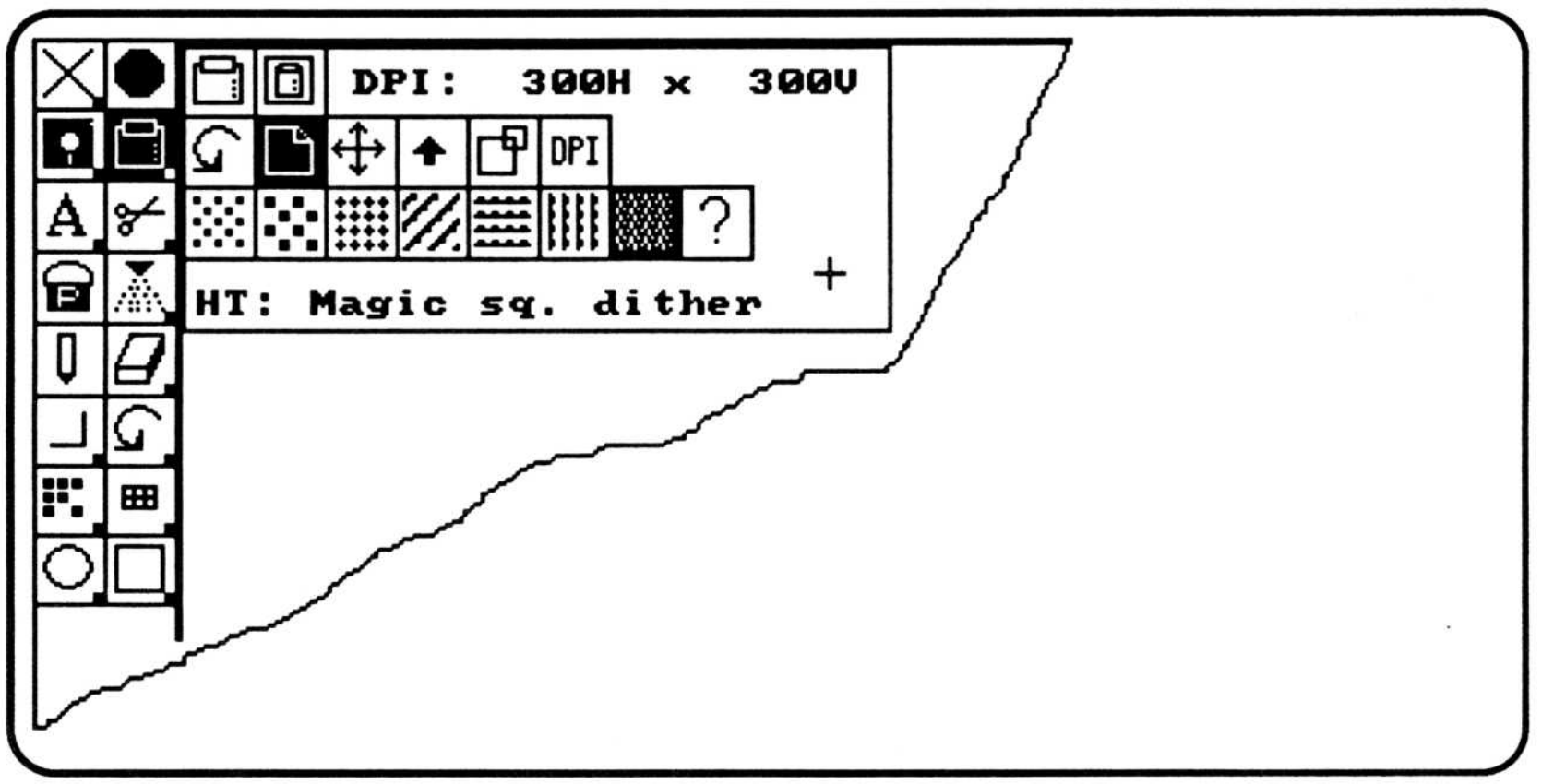


Figure 3-3. A Sample Pop-Up Menu

To select an option from a pop-up menu, move the cursor to the appropriate icon in the pop-up menu and press either button.

To exit from a pop-up menu, that has more than one option line, or if you wish to exit from a pop-up menu without making a selection, move the cursor so that it is not on top of any pop-up icons within the pop-up menu and press either button.

Directory Functions in Pop-Up Menus

Several pop-up menus have the ? icon. Selecting this icon brings up, in the upper left corner of the screen, a directory display of all relevant files for selection. A sample directory display is shown below:

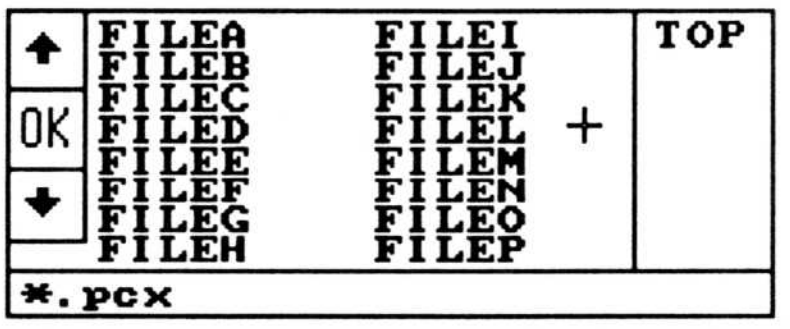


Figure 3-4. Sample Directory Display

Note that the file extension shown on the bottom of this display ("pcx" in the figure) may differ, depending on the type of file, and may include the directory path, if applicable.

To select an entry from the directory display, move the cursor over the entry name and press either button, highlighting the name. Then move the cursor over the box that says "OK" and press either button. The pop-up menu reappears on the screen with the selected entry name as the filename on the bottom line.

Scrolling Through Directory Lists

When there are too many entries in a directory to be displayed at one time, you can press the up and down arrows on the top and bottom of the word OK and press either button to scroll through additional screens. If you are on the last screen, the word BOT appears in the column where the word TOP is shown in Figure 3-4. If you are on a screen other than the top or bottom neither word will be seen.

Note that all functions within the pop-up menus follow paths if specified as part of a filename. To get a directory of, say, drive D, type "D:" on the bottom line and select the directory icon. To get a directory of the entries in a subdirectory (say, PHOTOS) on drive D, type "D:\PHOTOS\" on the bottom line and select the directory icon. If a path or filename gets too long to display within the pop-up, the displayed path will be truncated at the left. This will be indicated by an ellipsis at the beginning of the path (e.g., ". . .GES\COLOR\MYFILE.PCX").

Using HELP

On-screen **Help** is available for the Dr. Halo IV Command Functions and the pop-up menus. The **Help** message you see depends on which Command Function or pop-up icon currently is selected. The messages appear in the top left corner of the screen (the space normally occupied by the pop-up screens).

To obtain HELP, press <F1>. (Remember, if you are using the keyboard locator, you must press <Esc> first.)

To move down through the HELP message, press the left button or <Page Down>. To move up through the message, press <Page Up>.

To exit the HELP message, press the right button, or press <Enter>.

*Note that **Help** is available only for Command Functions and pop-ups. If you attempt to access **Help** while your cursor is on one of the other menu icons (for example, a Hatch Pattern), the message you will access will be the one for the currently selected function.*

Using UNDO

The Dr. Halo IV **Undo** feature allows you to remove the most recent changes to the screen.

To activate Undo, select the Current Function icon (lower left on the screen) with either button. You will see this prompt:

UNDO?

left=YES right=NO

Press the appropriate button for the desired action.

To activate Undo using a keyboard shortcut, press <Ctrl U>. Note that this allows you to activate **Undo** even if icons have been removed to allow use of the whole screen.

When you select a new function, the current image on the screen is saved to the **Undo** buffer (but not to disk). The **Undo** command restores the image in the **Undo** buffer to the screen, erasing any changes made since the last save to the **Undo** buffer.

The **Undo** buffer is automatically updated each time a new Command Function is selected and when the icon is selected.

The Undo buffer is also updated whenever you switch to the Virtual Page drawing or positioning modes. Since all Virtual Page drawing operations occur directly on the Virtual Page, it is not possible to Undo these operations.

To manually update the Undo buffer, press <Ctrl B>.

It is generally a good idea to keep the ***Undo*** *buffer in mind both when you frequently switch Command Functions and when you work for a long time with a particular function. For example, you can continuously modify an image with one particular Command Function for several hours and* ***Undo*** *will restore the image to the way it was when you first selected that Command Function unless you periodically update the buffer. Or, you can select a Command Function, make one quick but major change, select another function, and* ***Undo*** *cannot undo that major change.*

Undo *will only function if you have enabled both the Virtual Page and* ***Undo*** *during* ***Setup.*** *Refer to Chapter 2 for more information about* ***Setup.***

Enabling the Virtual Page and therefore enabling ***Undo*** *may slow Dr. Halo IV considerably. The amount that your system is slowed depends on the following: 1) the resolution of your graphics device (higher resolution means greater degree of slowness; 2) the size of your Virtual Page; 3) the speed of your computer; and 4) whether the Virtual Page size requires disk storage. Depending on your system, you may choose to do without the virtual page (and therefore,* ***Undo****). Or you may wish to set up a VRI at the same resolution of your monitor to enable* ***Undo*** *only.*

Refer to Chapter 2 for a discussion of setting up the Dr. Halo IV Virtual Page.

The Command Function Icons

Figure 3-5, below, presents a brief description of the Command Function Icons. Detailed descriptions of all icons can be found in Chapter 6.

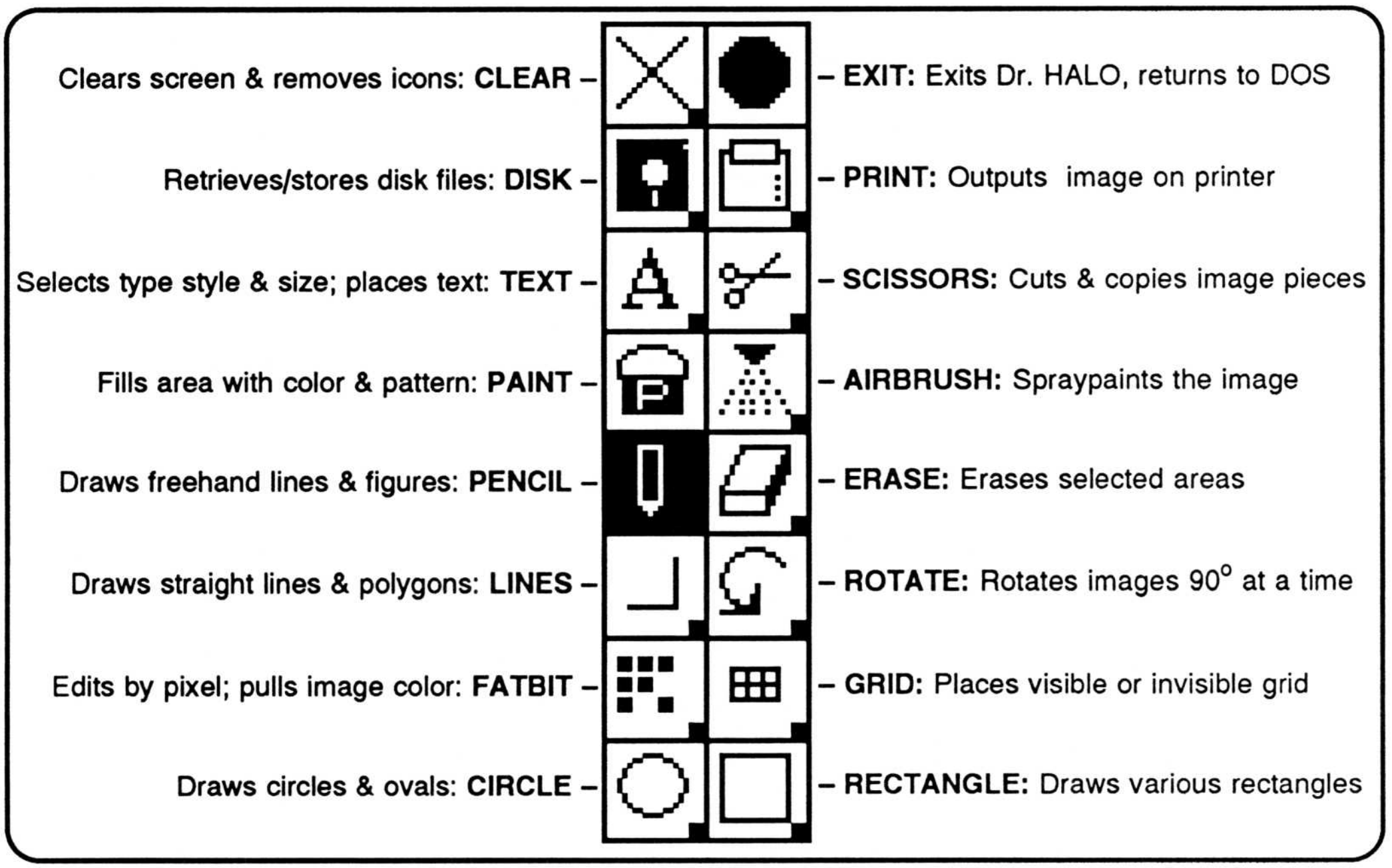

Clears screen & removes icons: CLEAR
EXIT: Exits Dr. HALO, returns to DOS
Retrieves/stores disk files: DISK
PRINT: Outputs image on printer
Selects type style & size; places text: TEXT
SCISSORS: Cuts & copies image pieces
Fills area with color & pattern: PAINT
AIRBRUSH: Spraypaints the image
Draws freehand lines & figures: PENCIL
ERASE: Erases selected areas
Draws straight lines & polygons: LINES
ROTATE: Rotates images 90° at a time
Edits by pixel; pulls image color: FATBIT
GRID: Places visible or invisible grid
Draws circles & ovals: CIRCLE
RECTANGLE: Draws various rectangles

Figure 3-5. Command Function Icons

Command Influences

The Line Width, Line Style, and Brush icons, shown below, influence many of the Command Functions.

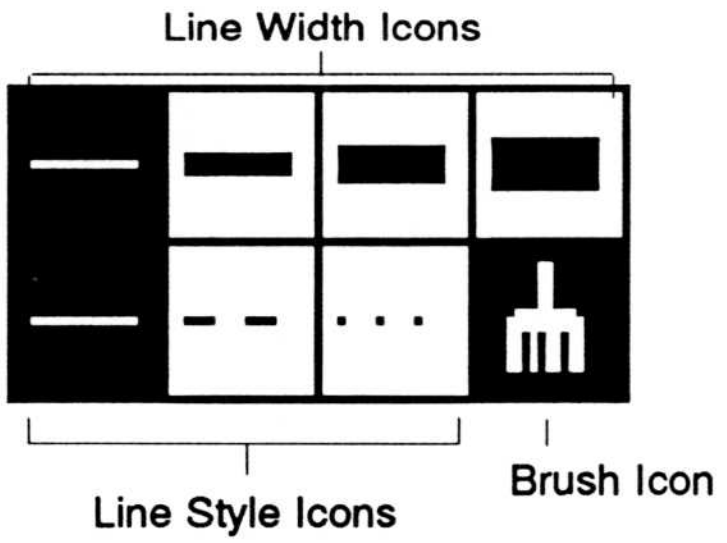


Figure 3-6. Line Width, Line Style, and Brush Icons

Line Width

The four line width icons control the width of lines drawn, either freehand or as part of borders or text. The smallest width is one pixel wide. The number of pixels of the other widths depend on the Command Function being used.

To change width, select the desired icon with either button.

The Command Functions affected by Line Width are: Text, Pencil, Lines, Grids (visible), Circle, and Rectangle.

Line Style

The three line style icons allow you to set your line style to solid, dashes, or dots.

To change line style, select the desired icon with either button.

The Command Functions affected by Line Style are: Text, Pencil, Lines, Grids, and Rectangle.

Brush

(the brush icon) controls whether the Command Function will repeat. In other words, if the brush is on (the default), the command will work continuously as you move the mouse. For example, if you are using the Circle command, you can draw continuous circles by holding down the left button and moving the cursor. If the Brush is off, the affected command will occur one time per press of the button. In the case of the circle, if you press the left button and place the circle, and then move the cursor, you must release the left button and press it again to draw another circle.

The command functions affected by the Brush are the Airbrush, Lines, Circle, Rectangle, and the Scissors.

Dr. Halo IV and Colors

One of the great strengths of Dr. Halo IV is the control it gives you over colors. Four colors and a hatch pattern are maintained at any one time, and all the colors of your graphics device's palette are available to you at the click of a button. If your device has a programmable palette, Dr. Halo IV has pop-up menus to easily change your palette within the program. This is especially useful in creating brilliant gradient effects.

This chapter is divided into three sections: Colors and Their Appearance, the use of Colors in Dr. Halo IV, and Palette Editing (including Gradients).

Colors and Their Appearance

It is helpful to understand the distinction between the pixel values that make up an image, which are often called "colors," and their actual representation on the display monitor. Other than for monochrome display adapters, where pixels of index 0 are always black, and pixels of index 1 are always white, there is no direct or absolute relationship between a pixel's value and its displayed color or appearance. A pixel's value is often called a "color index," because the value is used by the graphics adapter to determine which entry in the current palette is used to display each pixel on the screen.

This process of palette look-up is also used when your image is printed, so that the printed image is always the best possible representation of what you see on the monitor screen. Palette editing, discussed later in this chapter, is the process of changing the appearance of one or more palette entries. If you edit the palette entry for a color that is currently displayed on your screen, you will instantly see all the pixels of that color value change appearance. Try this, for instance, with the maximum color index supported by your display adapter, which will be the rightmost color in the color bar display. This color is used to draw all of the Dr. Halo IV icons and controls, so if you edit this palette entry, all of the icons and controls change instantaneously. Just don't make the color too dark, or you won't be able to see the controls to change it back.

The analogy of a paint-by-numbers picture may be helpful here. When you have selected a particular color and drawn on the screen, the area drawn is filled with that color number, like the numbered areas on the paint-by-numbers picture. Which color is perceived by your eye (and the printer) depends on the paint with which you choose to fill that numbered area. The advantage with paint-by-numbers on the computer is that you can instantly change all of those colors simply by editing the palette.

Many of the operations that are available in Dr. Halo IV operate on a pixel's value or color index, especially the Cut and Paste combine modes and the Color Swap operations.

For example, whenever you Paste using the Matte combine mode, any pixel of the Cut area that has a non-zero value will be placed during the Paste. The other Cut and Paste combine modes calculate new pixel values as a result of the arithmetic operation on the two pixels (the current pixel on the screen, and the pixel in the Paste buffer). So, if you need to Cut and Paste an image with black areas (usually drawn with index 0) using the Matte combine mode (where index 0 is transparent), you should use the palette editor to make one of the other "colors" appear black, and use that color wherever black is needed in the source image.

The Use of Colors in Dr. Halo IV

Dr. Halo IV maintains four colors at any one time, in addition to a hatchstyle. The colors are drawing color, foreground color, background color, and clear color.

Colors may be selected from the color bar, as shown in Figure 4-1, below.

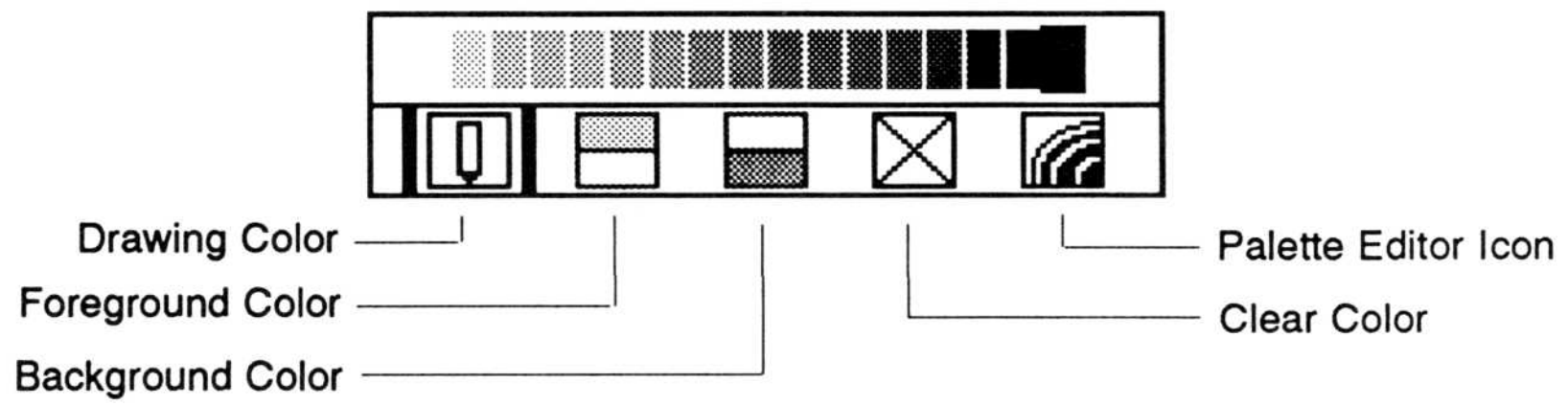


Figure 4-1. Color Selection Icons

Sixteen hatch patterns including solid fill are available. The hatchstyle foreground and background are determined by the foreground and background colors. During paint operations, if a hatch pattern is selected, then the interior of the painting area is filled with the hatch pattern.

On graphics cards that allow palette programming, colors may be edited using the palette editor.

Drawing Color

This color is used in point and line drawing, for the borders of circles, bars, polygons, and text. If no hatch pattern is selected, it is used as the fill color during a paint operation. It is the drawing color for the left button during Fatbit editing. It is displayed in the current color icon, and, if no hatch style is selected, it is displayed in the bottom half of the current hatch style icon.

Use to select the Drawing Color from the color bar (refer to Figure 4-1, above). Or select the Drawing Color from your image using the Fatbit editing pop-up menu. (See Chapter 6 for a discussion of the Fatbit pop-up.)

Foreground Color

This color is the foreground for hatch patterns and line styles. It also is the destination color for gradients (the color used on the right or bottom edges for gradient rectangles, the inside of gradient spheres, and the vertical of radial gradient circles) and it supplies the ending RGB values for the gradient palette generator. During some Erase operations, pixels in the Foreground color are changed. During color swap operations, pixels of the Foreground and Background colors are exchanged.

Use ▭ to select the Foreground color from the color bar (refer to Figure 4-1, above). Or, select the Foreground color from your image using the Fatbit editing pop-up menu. (See Chapter 6 for a discussion of the Fatbit pop-up.)

Background Color

This color is the background for hatch patterns. It also is the initial color for gradients (the color used on the left or top edges for gradient rectangles, the outer edges of gradient spheres, and the horizontal of radial gradient circles) and it supplies the beginning RGB values for the gradient palette generator. During color swap operations, pixels of the Foreground and Background colors are exchanged.

Use ▬ to select the background color from the color bar (refer to Figure 4-1, above). Or, select the Background color from your image using the Fatbit editing pop-up menu. (See Chapter 6 for a discussion of the Fatbit pop-up.)

Clear Color

This color is the one used to clear the screen using the Clear options. Areas erased by Erase operations are changed to the currently selected Clear color.

Use ☒ to select the clear color from the color bar (refer to Figure 4-1, above). Or, select the Clear color by using the Clear pop-up menu. (See Chapter 6 for a discussion of the Clear pop-up.)

Selecting Hatchstyles

The hatchstyle selection menu bar is toggled on when the color bar is toggled off. To switch between the two, click on the current hatch/current color icon. The Hatchstyle Selection Menu is shown in Figure 4-2 below.

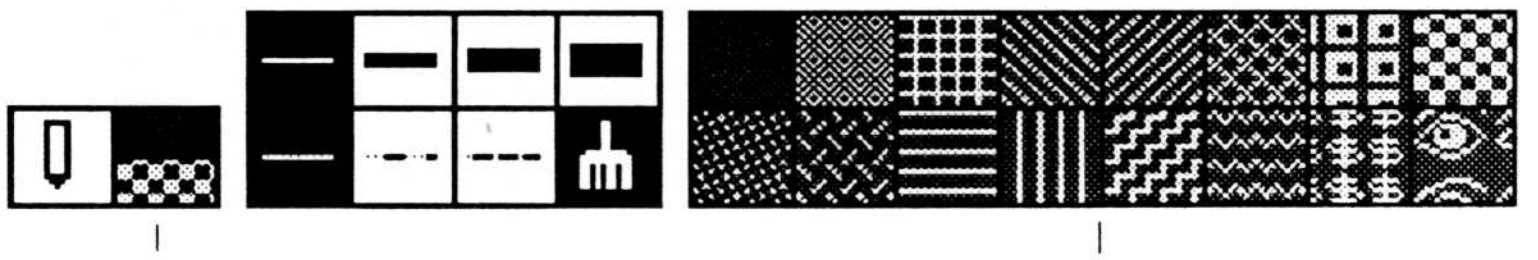


Figure 4-2. Hatch Selection Menu

To select a hatchstyle, click with either button on the desired style.

You can design and load your own hatch pattern using the Fatbit edit pop-up menu (See Chapter 6 for a discussion of the Fatbit pop-up.)

Selecting Colors

Selecting Colors from the Color Bar

To select the Drawing Color, Foreground Color, Background color, or Clear Color from the Color Bar, first select the icon for that color with the left button. Then move the cursor to the color bar and click the left button on the desired Color color. (For a graphics device supporting sixteen or more colors, click the right button to zoom in on a particular area of the colorbar. Move across the bar with the right button pressed and then click with the left to select a color.)

Selecting Colors from the Screen

To select the Drawing color, Foreground color, or Background color from the screen, follow the directions outlined in Chapter 6 in the Fatbit editing section.

Selecting Colors With a Smooth Palette Between Them

To select the Foreground and Background colors together and, at the same time, alter the palette so that a color gradient appears to flow from

one to the other, follow the directions outlined in the Palette Editor Section, below. Note that this is only supported for graphics devices that support a programmable palette.

Selecting the Clear Color from the Clear Pop-up Menu

To select the Clear Color from the Clear pop-up menu, click on with the right button to access the pop-up, then click the left button on the second icon. This will clear the screen to the current drawing color and change the Clear color to be the same as the Drawing color.

Palette Editor

On devices that support a programmable palette, the *(PALETTE) icon accesses a pop-up menu that allows you to edit palette colors and to smooth gradients.*

Select with the right button to access one of the following pop-up menus.

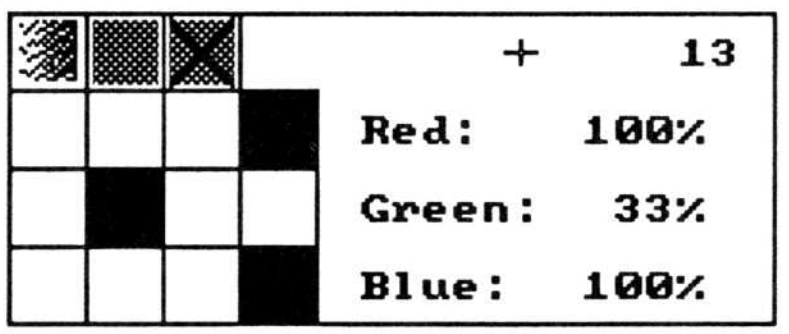


Figure 4-3. Palette Editor Pop-Up (16 of 64 Color Devices)

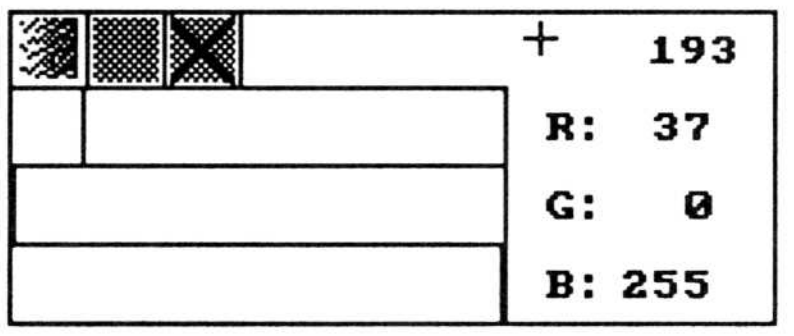


Figure 4-4. Palette Editor Pop-Up (All Other Devices)

The difference between the menus above reflects the palette adjustment capabilities of the display adapter. For devices supporting 16 colors of a fixed set of 64 colors (notably the IBM EGA), there are only four distinct settings for each color component. On other devices supporting a programmable palette, the color components can be adjusted over a continuous range from 0 to 255.

The color shown in the center box on the top line of the pop-up is the same as whichever color icon (Drawing, Foreground, Background, or Clear) is selected.

Editing the Color

To edit the currently selected color, first access the Palette Editor Pop-up.

Move the cursor to one of the R (Red), G (Green), or B (Blue) lines in the pop-up. Press and hold either mouse button and move the slider bar to change the value. Moving the slider bar to the left decreases the value, while moving to the right increases the value. Moving the bar with the left button pressed selects odd numbers, while moving the bar with the right button pressed selects even numbers.

To accept the effects of editing, select the middle icon on the top line and click with either button.

To undo the effects of the editing, select (the rightmost icon on the top line), and click with either button.

To exit the pop-up, click anywhere in the pop-up other than inside one of the icons.

Smoothing a Gradient/Selecting Colors

The Gradient Palette Editor allows you to select foreground and background colors and generate a smooth gradient between them. Using a range of the palette holding a smooth gradient between two colors will produce the most pleasing effects during gradient operations. To generate a portion of the palette containing such a smooth gradient, first access the Palette Editor pop-up.

From that menu, select from the upper left corner. This accesses the following pop-up menu.

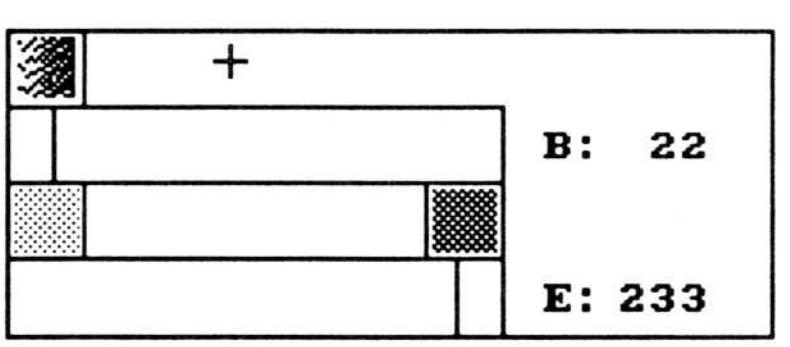


Figure 4-5. The Palette Editor's Gradient Pop-Up

To change the background color index, which will then serve as the beginning color for the gradient, move the cursor to the B (beginning) row and, with either button pressed, move the slider bar. (On 256-color devices, moving the bar with the left button pressed selects even values; moving with the right pressed selects odd values.)

To change the foreground color index, which will then serve as the ending color for the gradient, move the cursor to the E (end) row and, with the left button pressed, move the slider bar. (On 256-color devices, moving the bar with the left button pressed selects even values; moving with the right pressed selects odd values.)

To undo the effects of the editing and exit the pop-up, click anywhere in the pop-up other than inside one of the icons.

To exit the pop-up, accepting the new Foreground and Background colors and generating a smooth gradient, click with either button on the icon. The RGB components of the background color will be used as the source color for the gradient palette and the RGB of the Foreground as the destination.

Changing the Colors Used for the Gradient

To edit the appearance of the background color, click with either button on the leftmost icon on the third row of the palette editor pop-up as shown in Figure 4-5. The Figure shown below in Figure 4-6 appears. This pop-up differs for 16 and 256-color devices in the same manner as the Palette Editor Pop-Ups shown in Figures 4-3 and 4-4.

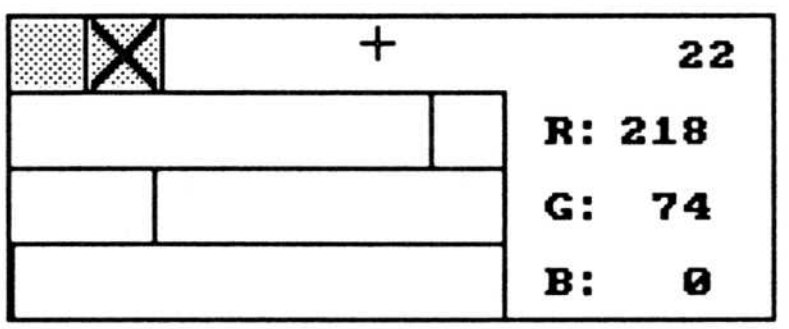


Figure 4-6. Foreground/Background Color Palette Editor

Edit the color's appearance as described previously.

To edit the appearance of the foreground color, click with either button on the rightmost icon on the third row of the palette editor pop-up as shown in Figure 4-5. The Figure shown below in Figure 4-6 appears. This pop-up differs for 16 and 256-color devices in the same manner as the Palette Editor Pop-Ups shown in Figures 4-3 and 4-4.

To return the color to its original state, move the cursor to (the rightmost icon on the top line), and click with either button.

To accept the new color, click with either button on ▒ (the accept icon).

An example of an edited palette's colorbar is shown below:

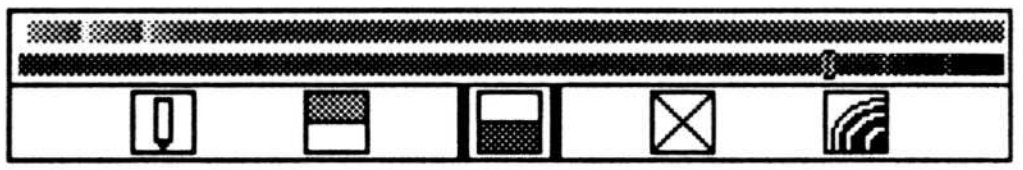


Figure 4-7. An Example of an Edited Palette

Tutorials

The tutorials in this chapter are guided step-by-step lessons in using the Dr. Halo IV Paint and Imaging Pak.

This chapter contains three short tutorials. At the end of each, you are encouraged to continue with the lessons learned and experiment on your own.

The tutorials are: 1) Making a simple drawing, 2) Capturing a **Viewer** screen (with the **Grab** utility) and then annotating it, and 3) Making a name tag with gradient-colored text (i.e. the color of the text flows gradually from one shade to another).

These tutorials are written with the following assumptions:

- The Dr. Halo IV Paint and Imaging Pak is installed on your system and is functioning properly. (If you enter Dr. Halo IV and it does not seem to be the way it is shown and described on the first two pages of Chapter 3, you may wish to re-run Setup and follow the Setup Procedures in Chapter 2).

- You know how to start Dr. Halo IV. (Enter "**DRHALO**↵" at the DOS prompt.)

- You know how to use your mouse. (Refer to the manual that came with your mouse, if you don't.)

A Simple Drawing: The Dr. Halo Cakewalk

The Starting Point: A Blank Dr. Halo Screen

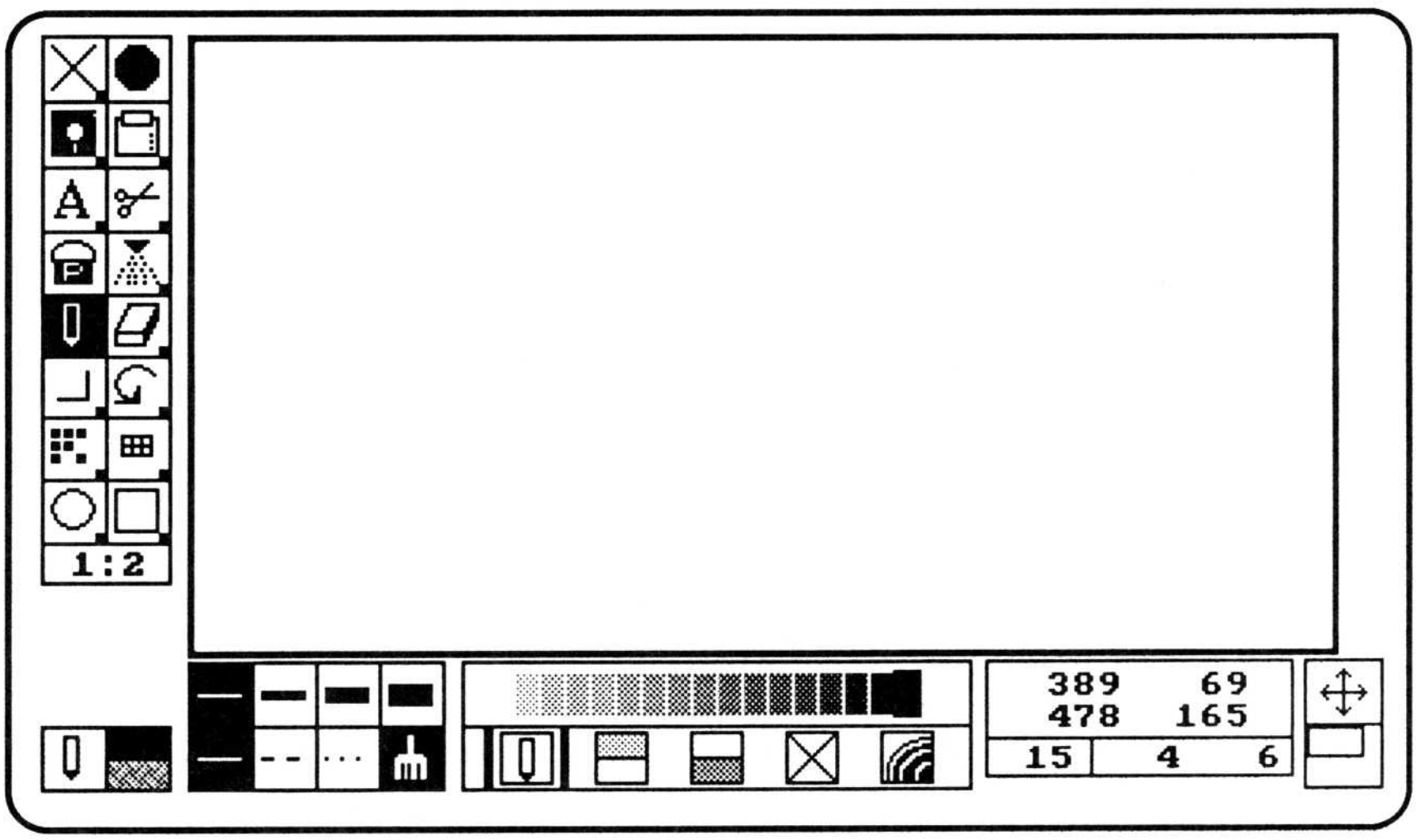
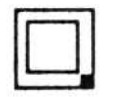
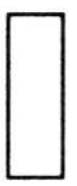


Figure 5-9. Blank Dr. HALO IV Screen

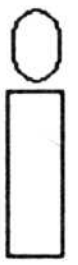
(Note that your screen may differ from that shown above. Refer to the first two pages of Chapter 3 for an explanation of possible differences.)

First, let's draw a simple figure...

We will start with a candle, because it is easy to draw. Select the  icon with the left button. Move to an out of the way corner of the drawing window and, while holding down the right button, size a box about the size and width of a small paper clip (1/4" x 1", if you want to be precise). Press the left button to place this rectangle on the screen.



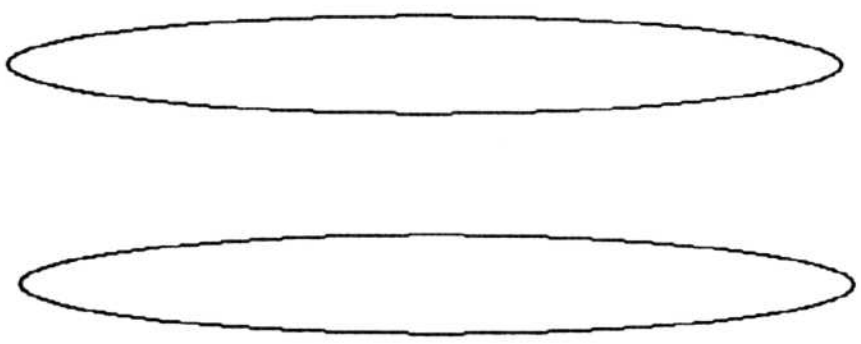
Now, select the icon with the right button to access the pop-up menu. Select the option (oval). Move to the top of the rectangle you have just drawn and, with the right button pressed, size a small vertical oval. Release the right button and press the left to place the oval on the screen.



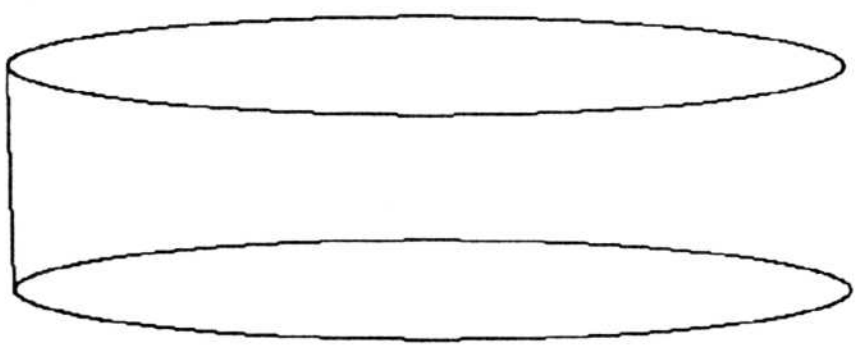
Now let's try the cake...

Again select the icon with the right button. When the pop-up menu appears, select the option. Move the cursor to the bottom of the drawing window and size a horizontal oval about 4" wide. Press the left button to place the oval.

Move the cursor up about 1½" and press the left button again to place another oval.



Now, select the icon with the right button. From the pop-up, select the option (vertical line). Move to the window and size a line (with the right button) long enough to connect the top oval to the bottom one on the left side. Press the left button to place the line.

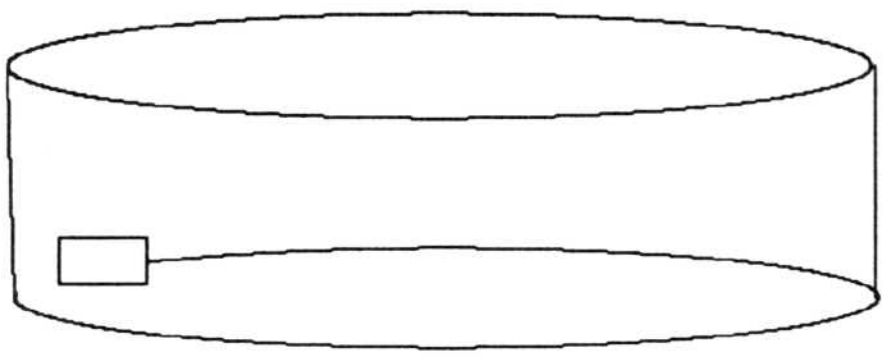


Connect the right sides of the ellipses in the same way.

Now, let's try erasing...

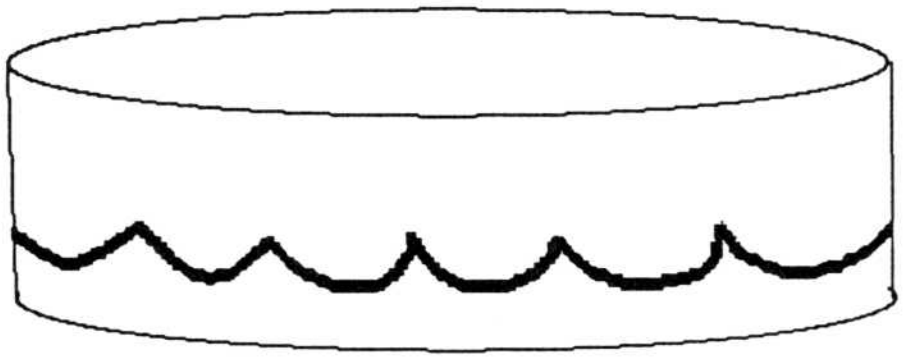
Select the icon with the left button. Using the right button, size the eraser box to be very small. Move the cursor to the inside of the connected ellipses and, with the left button pressed, move the cursor slowly over the curved line in the middle of the figure to erase it.

What you have left should resemble an unfrosted cake.

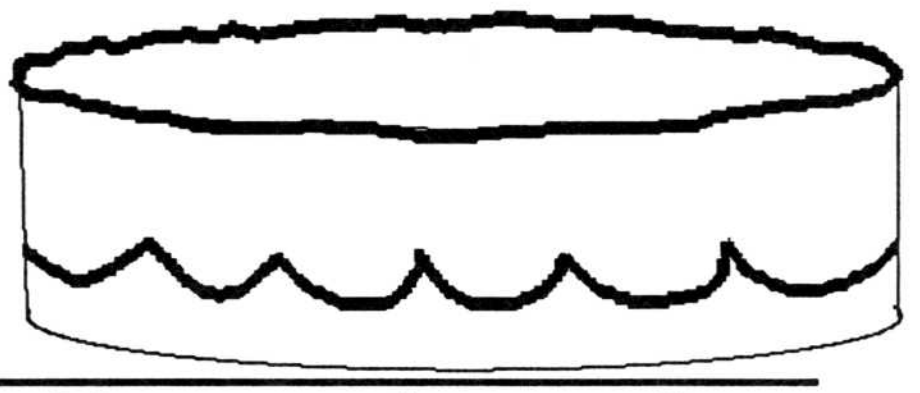


Icing the cake...

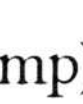
Select the fattest line from the icons. Select the icon. Move the cursor to the side of the cake and, holding the left button down, draw in a looping motion across the bottom front side of the cake.

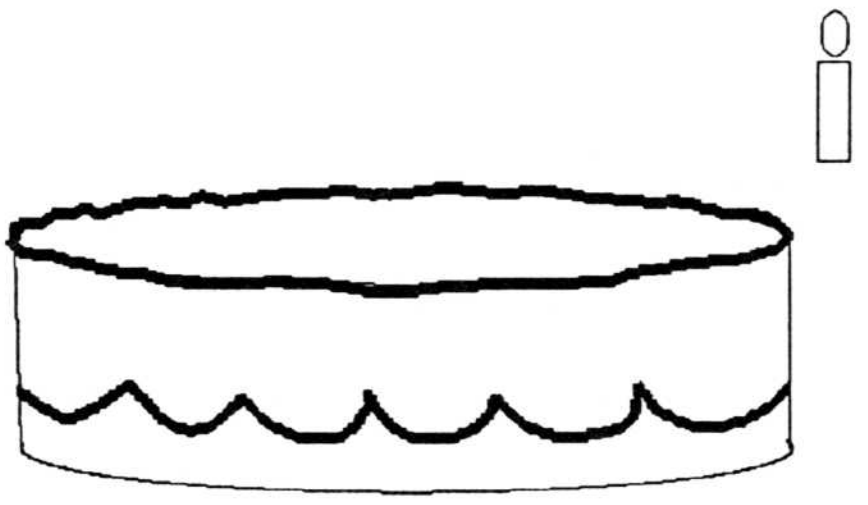


Move the cursor to the top of the cake and trace the outline of the top with the fat line. (When finished, remember to go back and select the thinnest line style to return to the normal drawing mode.)



Now, let's try rubberstamping candles...

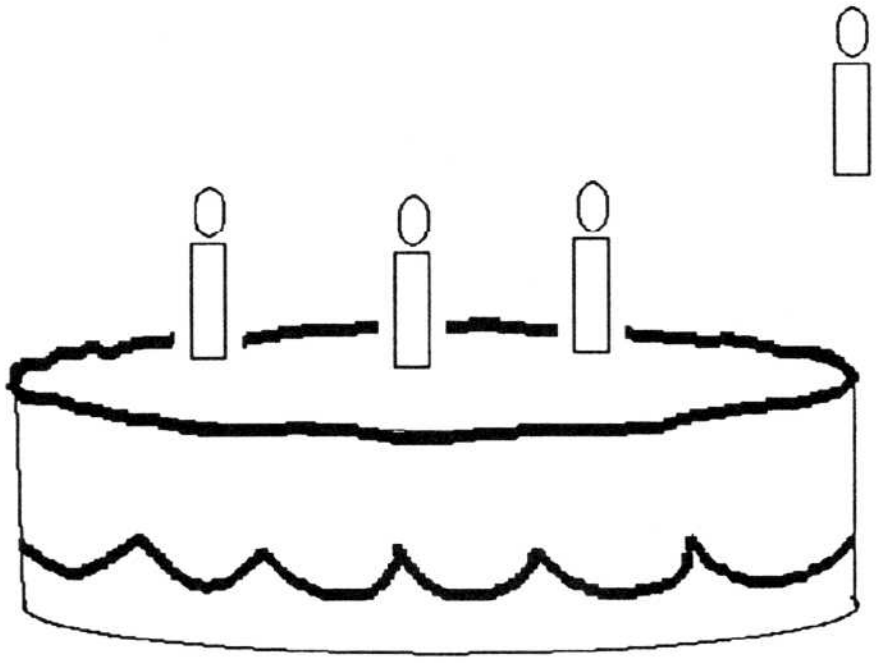
Access the pop-up menu, and select the  option (rubberstamp).



When the pop-up disappears, move the cursor to the candle.

Size a box (with the right button) around the candle. Release the button and press the left one. Move the cursor to the top of the cake (without holding any button down). When the cursor is approximately in the center, press the left button to place the candle.

Move the cursor again, slightly to the right, and press the left button to place another candle. Move the cursor to the other side of the original candle and press the left button again. (You could carry on rubberstamping candles indefinitely, but let's stop here.)



Our final step is to get rid of the spare candle by selecting the icon and moving the cursor over the candle with the left button pressed.

Your screen should look similar to the one shown in Figure 5-2 on the following page. If it does, congratulations! You have just drawn your first artwork with Dr. Halo IV.

Now you might like to experiment on your own. Before going on to the next tutorial, try to color the flames yellow, try printing, or saving the file, if you would like to keep it. You might write "Congratulations" on the side of the cake, as we did in the figure. Or, try something totally your own.

If you get stuck, remember to look at Chapter 6 and the rest of this manual to learn more about Dr. Halo IV

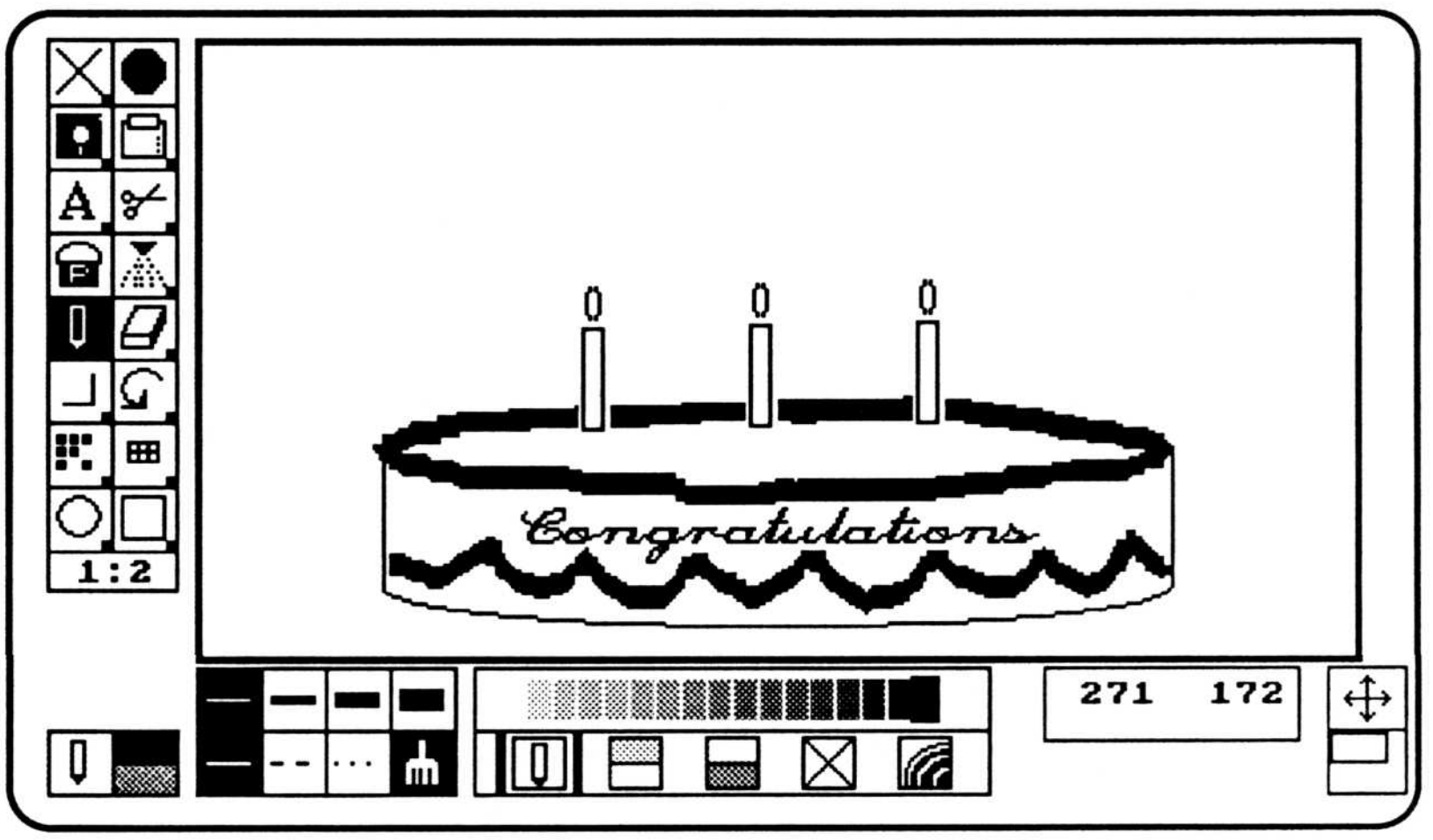


Figure 5-10. Finished Cake On Dr. HALO IV Screen

Annotating a Captured Screen

This tutorial shows how two parts of the Dr. Halo IV Paint and Imaging Pak fit together, and it introduces you to a third program in the Pak.

Within this tutorial, you will load **Grab,** enter the **Viewer,** capture the **Viewer's** initial screen, exit the **Viewer,** unload **Grab,** and enter Dr. Halo IV, where you will place labels on the captured screen. What this teaches you is how you can take any graphics-mode screen that can be displayed on your computer system and bring it into Dr. Halo IV, where you can print it, change it, and put it into a form that you can use in other applications.

Assumptions

To keep this tutorial fairly simple, we have to assume that you have not changed that configuration of your Dr. Halo IV Paint and Imaging Pak software since the Installation and Setup process (described in Chapter 2).

In other words, if you have moved any of the component parts of the Imaging Pak into another directory from that in which it was installed, or if you have changed the configuration file of any of the parts (as described in Appendix B), this tutorial will not work.

It is also assumed that you are using the CUT file format for **Grab** instead of PCX. If, during Setup and Installation, you chose PCX for **Grab,** then everywhere below that it says to enter a filename with extension CUT, change that extension to PCX.

The Starting Point

Begin at the DOS command line in the directory in which the Dr. Halo IV Imaging Pak is installed. Unless you changed from the default drive/directory during Setup, this will be the directory **DRHALO4**. (If necessary, enter the DOS command **CD \DRHALO4**↵ to change to this directory.)

Step One: Load the Grab Utility

Load Grab by entering **GRAB**↵

You should see the following on your screen:

```
GRAB Version 1.0
HALO Professional Screen Grabber Utility
Copyright (c) Media Cybernetics Inc. 1991

GRAB installed.
Files will be written to:
      c:\drhalo4\GRAB0001.CUT
```

Step Two: Load the Program for Screen Capture

(Remember that the program within which we will capture a screen is the Viewer utility that is included with Dr. Halo IV. The Viewer utility is NOT ordinarily a necessary part of the Grab process).

While still at the DOS command line, enter **VIEWER**↵

The Dr. Halo IV **Viewer** utility will start up. After an initial copyright screen, you should see the screen shown in Figure 5-11, on the next page.

Step Three: Grab the Screen

To grab the screen, press **<Ctrl-Alt-G>** (i.e. hold down the CTRL and ALT keys, then press the G key).

After a few seconds, you should hear a beep, telling you that the screen was grabbed successfully.

Step Four: Exit Viewer

Move the cursor on top of the word "File" on the top left. Click with the left button. A "Drop Down" menu will appear.

Move the cursor on top of the word "Quit" on the bottom of the menu. Click with the left button. A "YES/NO" prompt will appear, asking if you wish to quit.

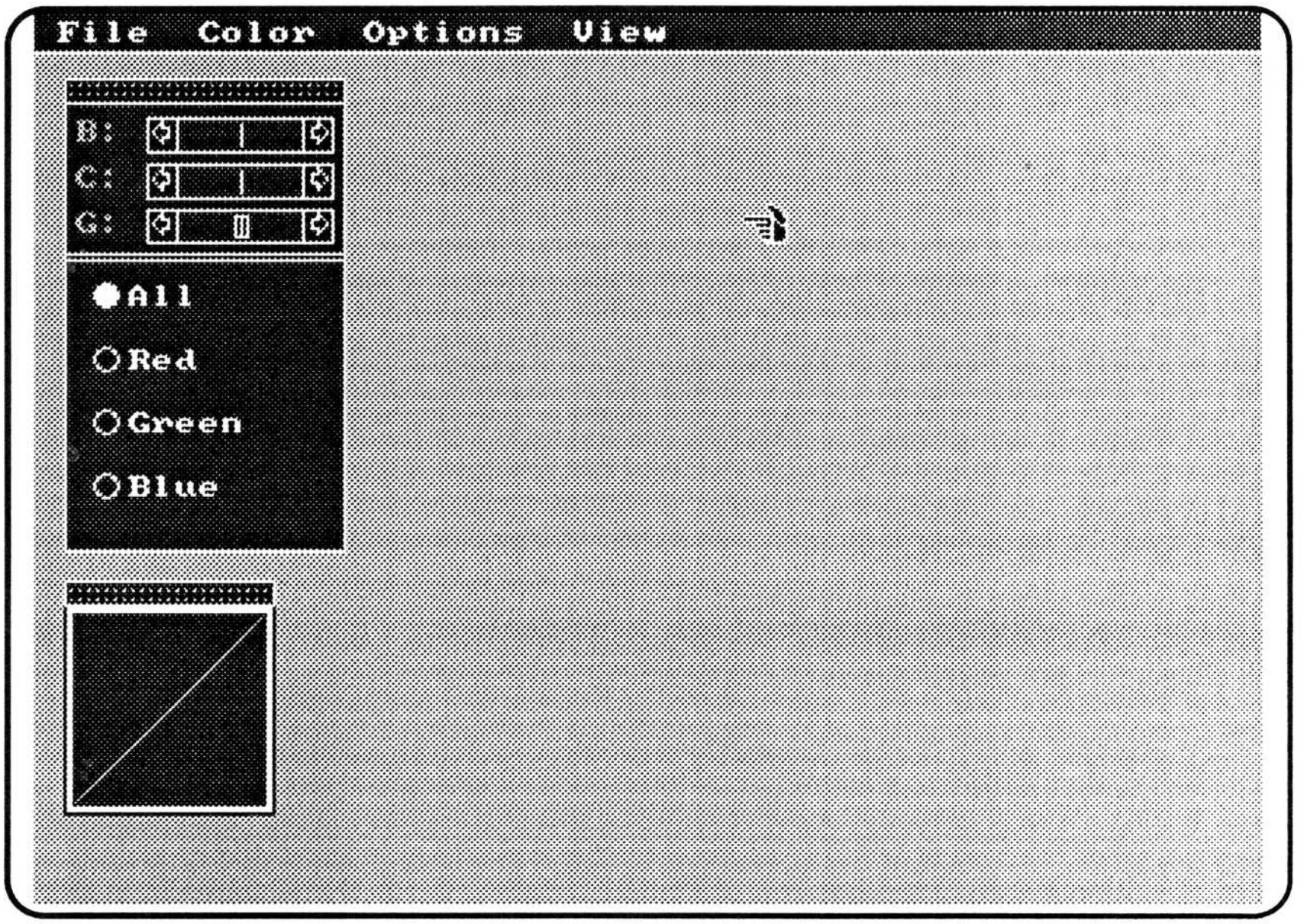


Figure 5-11. The Initial **Viewer** *Screen*

Move the cursor on top of the word "Yes" and click with the left button.

Your screen should again show the DOS command line.

Step Six: Unload Grab

To remove Grab from your system's memory, enter **GRAB -R**↵. You should see the following:

```
GRAB Version 1.0
HALO Professional Screen Grabber Utility
Copyright (c) Media Cybernetics Inc. 1991

GRAB removed and memory restored to operating system.
```

Step Six: Dr. Halo IV

To start Dr. Halo IV and load the captured file at the same time, enter the following on the DOS command line: **DRHALO GRAB0001.CUT**↵

Your Dr. Halo IV screen should look similar to the one shown in Figure 5-12 above. Part of the image is covered by Dr. Halo IV icons, but it is all there.

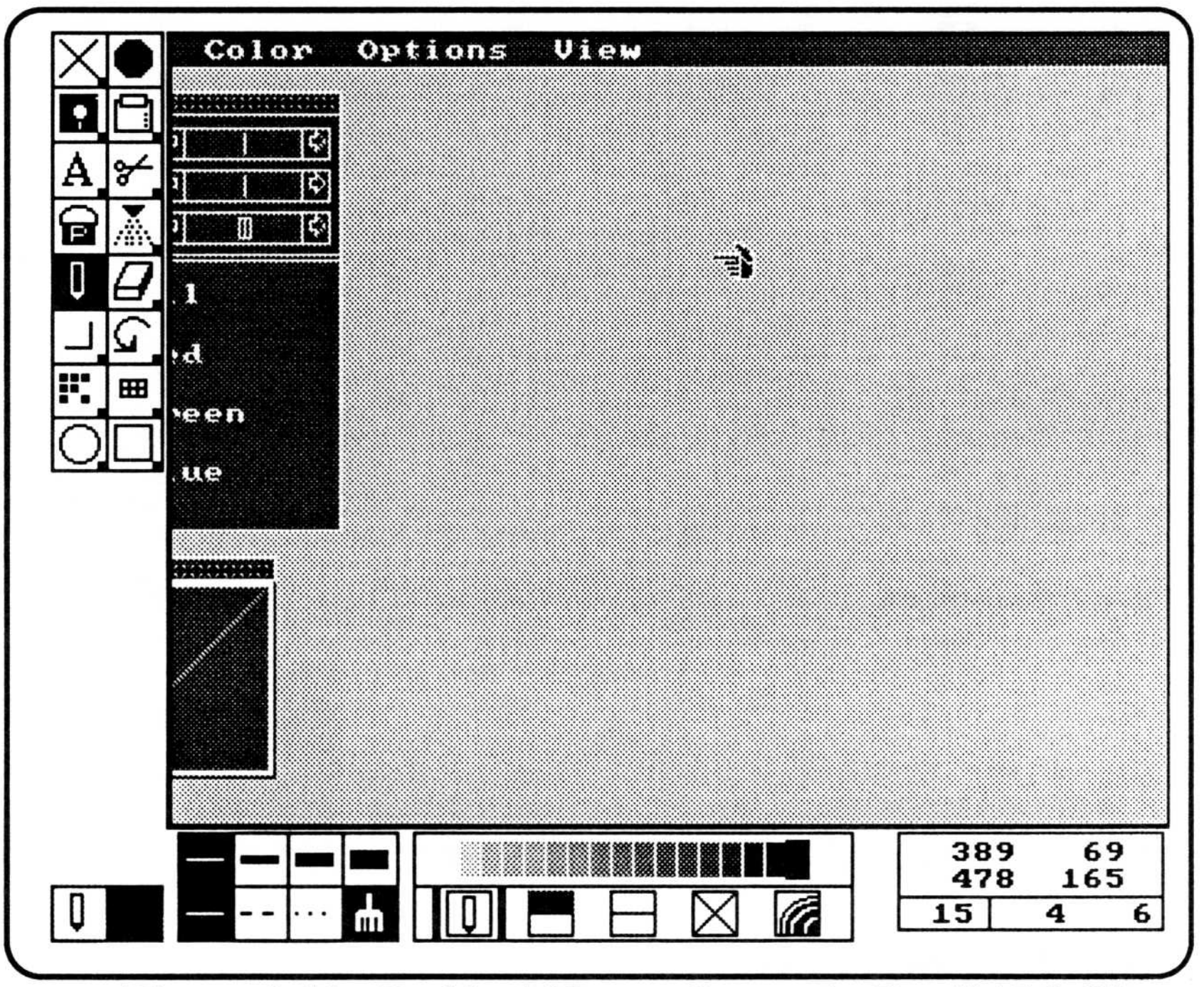


Figure 5-12. Grabbed Viewer Screen in Dr. HALO IV

Step Six: And Now Let's Annotate It

With the left button, select the [A] icon. Now, type the words, "Gamma Curve."

Notice that the characters you type appear in a box at the top of the window, while your cursor now appears as a box that widens as you type more letters. This allows you to place your text anywhere on the screen. You can also size the text by moving the cursor with the right button pressed.

Move the text box to the right of the bottom object (actually called a "floating window") of the grabbed **Viewer** screen. Press the left button to set the text. You have just given a name to the **Viewer**'s Gamma Curve floating window.

Now type the words, "Image Controls" and then place them next to the other floating window in the grabbed **Viewer** screen.

Step Eight: Let's Keep This One

To save your work, select the icon with the right button to bring up the pop-up menu. Use the backup key to erase the word shown on the bottom of the menu and type the word "VIEWGRAB." Now select the option. The image is saved as a PCX file: VIEWGRAB.PCX.

A Rainbow Name Tag

This tutorial shows you how to fill text with a gradient; i.e. a gradual change of colors. What you see depends heavily on your graphics device. On a monochrome monitor, the name tag you create slowly changes from black to white, by way of what is called a dithered gradient. On a graphics device that can handle millions of colors, the end product of this tutorial will contain a rainbow of colors.

To be general enough for all the monitors Dr. Halo IV supports, this tutorial is very simple. For more information, see the gradient section of Chapter 5. Especially if you have a graphics device that shows many colors, there is much you can do that is not described in this tutorial.

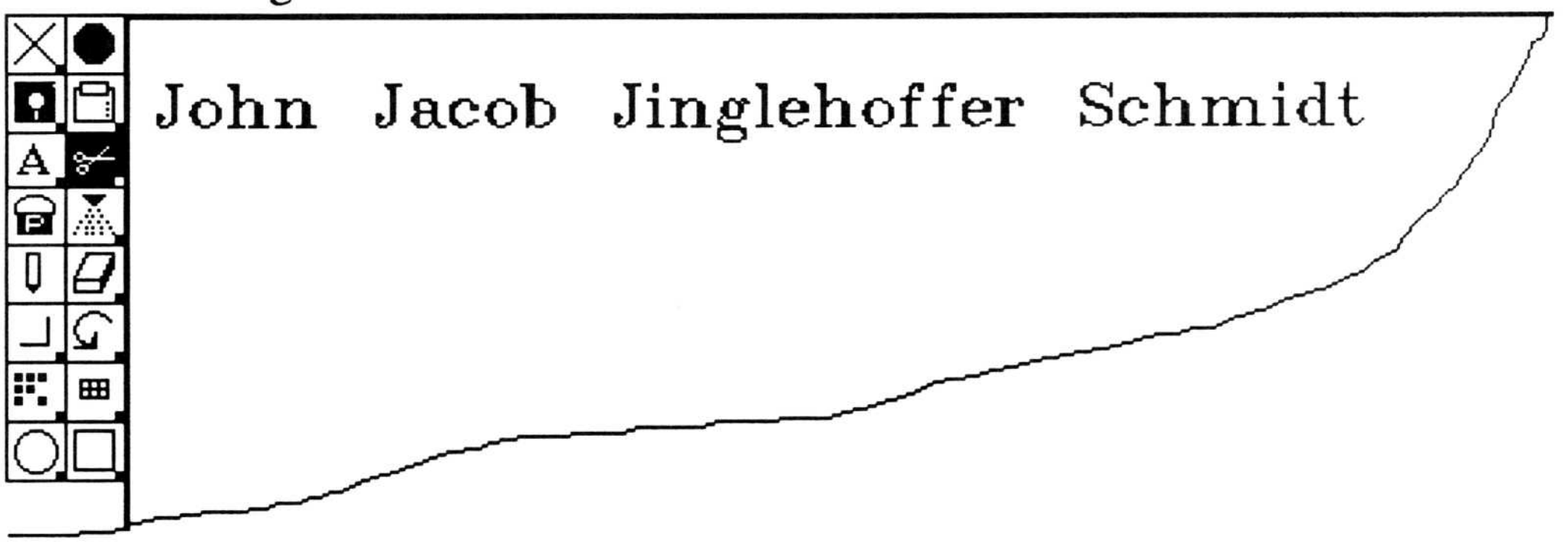
The Starting Point

As in the first tutorial, start with a blank Dr. Halo IV screen.

Step One: Entering a Name

Select the icon with the left button. Now type the name "John Jacob Jinglehoffer Schmidt."

Move the mouse with the right button pressed to size the name to fit on your screen. Move the mouse with no buttons pressed to choose a location. After you press the left button to set the image, it should look like the figure below.



Step Two: Creating a Gradient Fill

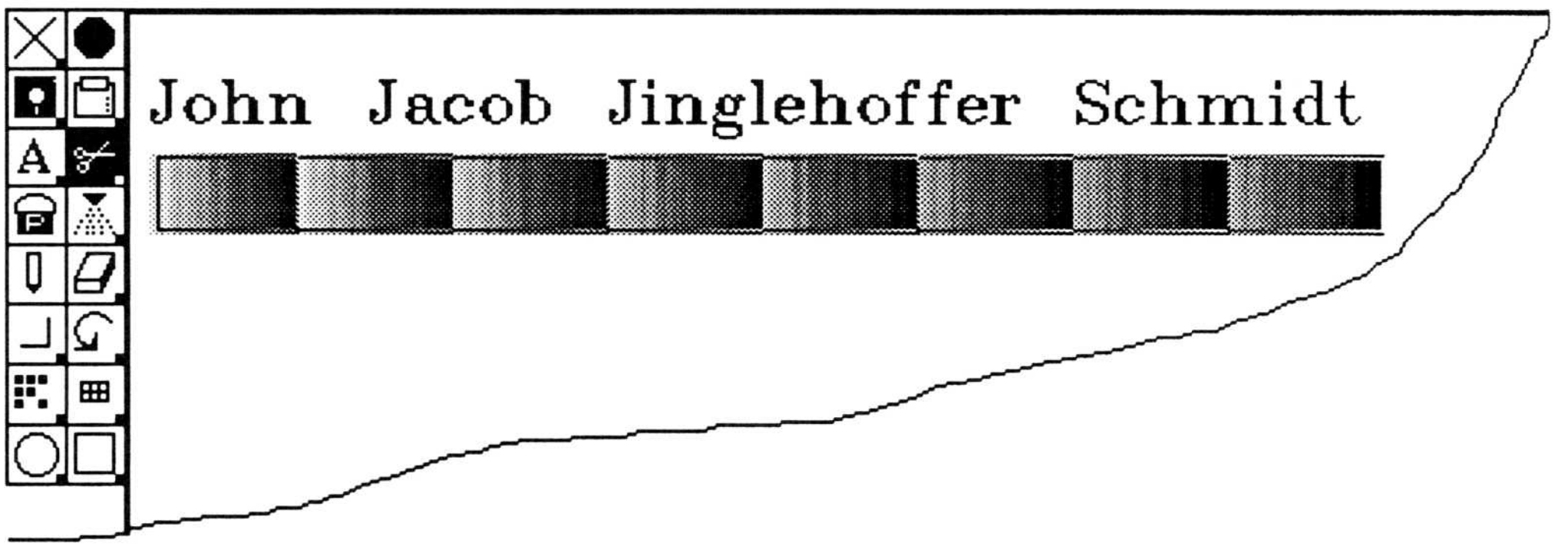
With the right button, click on the icon. Select the option. The pop-up disappears and your cursor is now a small box.

With the right button pressed, size the box so that it just covers the entire name. Release the right button and move the box somewhere else on the screen. Press the left button to fix the box and the gradient appears.

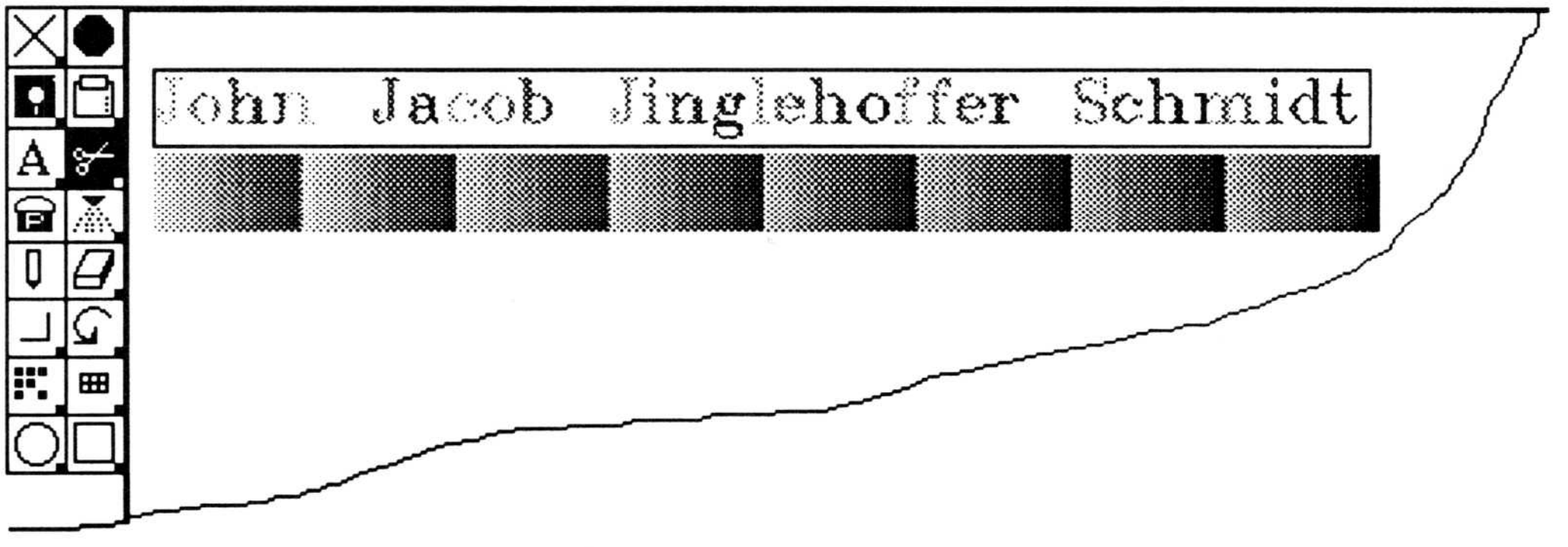
Step Three: Copying the Gradient

Select the icon. Now with either button click on the & option. Note that the pop-up menu remains. Select the option. The pop-up disappears and your cursor is again a small box.

Size the box so that it is the size of the gradient box but no more, as shown in the figure below.



Click with the left button to copy the gradient. Move the box over the text. Click again with the left button to paste the color onto the text.



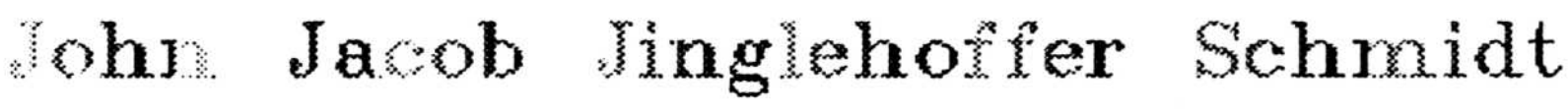
Step Four: Erasing the Gradient

Click on the icon with the left button. With the right button pressed, size the eraser box so that it covers the gradient rectangle. Release the right button and click with the left to erase the rectangle. All that remains is your gradient-colored text.

Step Five: Saving in a Name-Tag Shape

Select the icon. Use the backspace key to delete the name on the bottom of the pop-up. Enter a name of your choice (eight letters or fewer; Jinglehoffer won't fit). Now select the option.

The pop-up menu disappears and you again have a box for a cursor. With the left button down, size it so it just covers the name "John Jacob Jinglehoffer Schmidt." Release the left button and press the right. The name tag is saved.



Dr. Halo IV Reference Guide

This chapter is a detailed reference guide to each Dr. Halo IV icon and pop-up menu (if applicable). Each icon is described in its own section in this chapter. The icons are listed in the order in which they appear on the screen, from upper left to lower right.

Layout of Each Section

Each icon description includes the following parts, if applicable:

Default

This is the "generic" function of the icon. That is, the default is what you get when selecting the function by pressing the left button. This part of the description will explain how the default option of the function works.

Pop-up Options

For those icon functions containing a pop-up menu, this part of the description explains how to access the menu as well as describe each option within the menu.

Influences

Some icon functions operate under the influence of the Line Style, Line Width, Brush, and Color Selection icons. This section describes how the particular functions are influenced.

Special Considerations

If there are any special considerations, they will be listed here.

CLEAR ☒

☒ *(CLEAR) allows you to erase the entire image from the screen, to create gradient backgrounds, to shift icon menus from "left and bottom" to "top and right" of the screen, or to remove the icons entirely.*

Default

Select ☒ with the left button to clear the screen to the clear color.

Upon selection you'll see this prompt

Clear Screen?

left=YES right=NO

Press the appropriate button for the desired action.

Pop-Up Options

Select ☒ with the right button to access the pop-up menu as shown below. You won't see the ↑↓ icon if the Virtual Page is enabled.

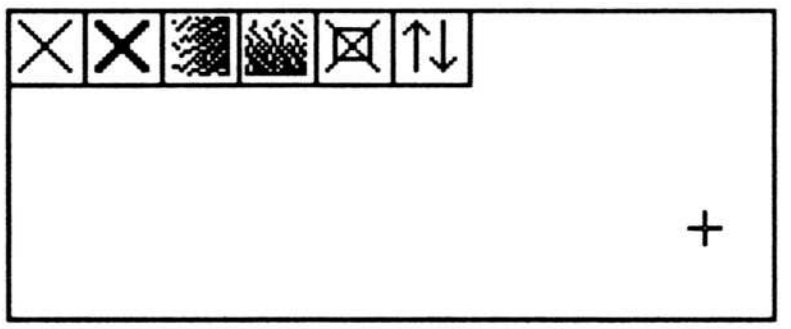


Figure 6-1. The Clear Pop-Up Menu

✕ is the same as the default (see DEFAULT above)

Changing the Clear Color to the Drawing Color

✕ clears the screen to the drawing color displayed in the Current Color icon, and sets this color as the clear color. The next time the default clear screen option is selected, the screen will be cleared to this color.

Clearing the Screen Using a Gradient

clears the screen to a horizontal gradient. The colors gradually change, left to right, from the background color to the foreground color.

clears the screen to a vertical gradient. The colors gradually change, top to bottom, from the background color to the foreground color.

The clear color is unaffected by clearing the screen using a gradient.

Moving or Removing the Icon Menus

allows you to use the entire screen area for drawing by removing the icon menus. To restore the icons, move the cursor to the left edge of the screen and press the right button.

(When in the drawing window, you can also remove and restore icon menus by pressing the space bar or tab key. To restore the icons, press the space bar or tab key again)

shifts the icon menus from the left and bottom to the right and top of the screen. To restore the icons, reselect this function. This function is not available and the icon does not appear if the virtual page is enabled.

Influences

The various Color icons have an impact upon the functions of Clear.

Special Considerations

The Clear icon functions do not change the current function as displayed in the Current Function icon.

The two gradient functions can, under certain conditions, take a considerable amount of time to execute. Factors affecting the speed of the gradient functions include the type of gradient (horizontal is slower than vertical), whether the Virtual Page is enabled and, if it is enabled, whether any part of the Virtual Page is stored on disk.

EXIT

(EXIT) allows you to exit Dr. Halo IV and return to DOS

Default

Select *with either button to exit the Dr. Halo IV program and return to DOS.*

Upon selection you'll see this prompt

Exit to DOS?

left=YES right=NO

Press the appropriate button for the desired action.

Pop-Up Options

None

Influences

None

Special Considerations

You can also exit to DOS by typing <Ctrl-X>. Remember, however, if you are using your keyboard as your pointing device, you must first press <Esc>.

DISK

(DISK) allows you to store and retrieve images (and, on many graphics devices, their corresponding palettes), to retrieve text files, and delete files from disk.

Default

There is no default. Selecting the icon with either the left or right button will access the pop-up menu.

Pop-Up Options

Click on with either button to bring up the pop-up menu, as shown below. The (palette) icon will not appear on all graphics devices.

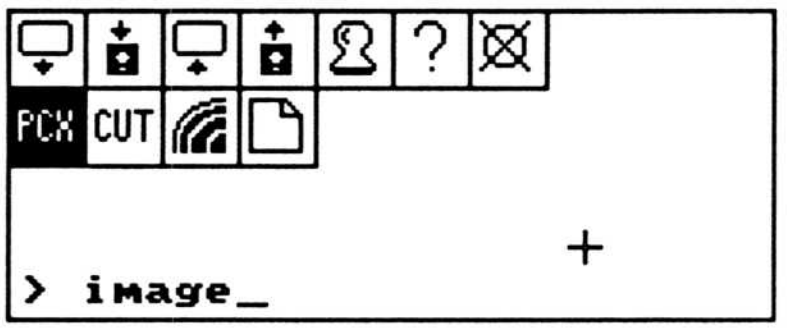


Figure 6-2. The Disk Pop-Up Menu

The bottom line of the pop-up identifies the current file. To enter a name, use the backspace key to delete the previous filename (initially "image" for image files, "text" for text files, or "palette" for palette files), and type the filename. If you selected a filename from the directory, it will appear on this line. (Remember, if you are using the keyboard as locator, you must first press <Esc>.)

Because the icons of the second line of this pop-up influence the icons of the first line, the second line's icons will be discussed first below.

Selecting a File Type

The second line of the pop-up menu allows you to determine which type of file: image (PCX or CUT), text (TXT), or palette (PAL) you wish to retrieve or store. (Note: text files can only be retrieved and not stored.)

Image Types

The PCX icon sets the file type to be image files of the type PCX. In other words, when you select one of the icons on the top row to store, retrieve, rubberstamp, or delete, the file will be a PCX type of file.

The CUT icon allows you to store, retrieve, or delete image files of the type HALO CUT.

Palettes

The icon will only appear if you are using a graphics board that supports a programmable palette. When using such a board, Dr. Halo IV will automatically save a palette file each time a CUT-type image is saved and will retrieve the corresponding palette file each time a CUT-type image is retrieved.

Note that you can retrieve or delete a palette file independent of a cut file. That is, if you are editing a PCX file and wish to save its palette to use with other files, use the icon to save the palette. Similarly, use this icon to restore saved palettes.

Text Files

The icon allows you to retrieve or delete text files with the filename extension .TXT. These text files should be limited to a page or less to fit the Dr. Halo IV screen. Note that you cannot store a text file.

Important: Dr. Halo IV does not act as a word processor. Text files that are retrieved are placed on the page as "bitmapped" images. In other words, a text file that has been retrieved is a pictorial representation of the file and cannot be "edited." You can, however, delete and add words or sentences in the representation manually in a cut-and-paste fashion.

Storing and Retrieving Files

Storing the Entire Image

The icon stores an entire screen image or virtual page, if enabled, to disk. To store the file, first select either the PCX or CUT icon, enter the

filename, move the cursor to this icon and press either button. For a CUT file, this will also store a palette file. Note that if filename already exists, you will be prompted whether you truly wish to overwrite that file.

Storing a Palette or Part of an Image

The icon stores a palette file or part of a screen image to disk. To store the file, first select the , PCX , or CUT icon, enter the filename, move the cursor to this icon and press either button. Note that if filename already exists, you will be prompted whether you truly wish to overwrite that file. The pop-up menu will disappear.

If you are storing either a PCX or CUT file, the cursor will appear as a small box. With the right button pressed, move the mouse and size the box over the image you wish to store. Release the right button and click with the left to store the image. For a CUT file, this will also store a palette file. For a palette file, you are not prompted for size before the image palette is stored.

Retrieving an Image or a Palette

The icon allows you to retrieve an image, text, or palette file from disk. First select either of the four icons from the second line of the pop-up menu. Then enter the filename on the bottom line. Move the cursor to the icon and press either button.

If you are retrieving either type of image file, a box will appear on the screen the size of the new image. Position the box by moving the cursor and click with the left button to place the image. Reading an image file will also retrieve the palette of the new image if your graphics device supports a programmable palette.

If you are retrieving a palette (PAL) file, the currently displayed image will change to reflect the new palette.

The icon allows you to retrieve either a PCX or CUT file to the top left corner of the screen or virtual page, without the positioning step that occurs with the icon. First select either the PCX or CUT icon, enter the filename, move the cursor to this icon and press either button. The pop-up will disappear, and the image file will be loaded onto the screen

or virtual page. The palette of the new image will also be retrieved if your graphics device supports a programmable palette.

Retrieving a Text File

If retrieving a text (TXT) file, you may first wish to use the A pop-up to select the font style and font attributes in which to display text. (See TEXT in this chapter.) If you do not select these attributes, the text will appear in the with the default attributes. A box will appear on the screen representing the size of the text block in the selected font. You can change the location of the text block by moving the cursor.

If you have selected the infinite size for the text font, you may change the text block size by moving the pointing device with the right button pressed. Press the left button to place the text on the screen.

(See the Special Considerations section, below, for more information on using your word processed text file with Dr. Halo IV)

Retrieving an Image To Use as a Rubberstamp

The (rubberstamp) icon retrieves an image that you can place repeatedly on the screen. It also retrieves the image without resetting either the screen attributes or palette. (Note that the colors of this image may not appear correct, as the palette is not retrieved). To use this icon, first select either the PCX or CUT icon, enter the filename, move the cursor to this icon and press either button. The pop-up will disappear, and a box the size of the image will appear on the screen. Move the cursor to position the image and press the left button. Each time you press the left button, a copy of the image will appear on the screen.

If the image is small enough, the file will be read only once and placed each time you press the left button. In this case, the current function icon will be the icon. If the image is too large for the rubberstamp, it will be read from disk every time the left button is pressed. In this case, the current function icon will be .

The Directory Function

An alternative to typing filenames when storing or retrieving files is to use the ? (directory) icon. Selection of this icon will display all files of the desired type (PCX, CUT, TXT, or PAL) currently stored in the directory.

Selecting the File Type and Search Path

First select the desired file type from the second line. If desired, you may type a search path on the bottom line of the pop-up menu before selecting the ? icon. To get a directory of, say, drive D, type D:\ on the bottom line and select the directory icon. To get a directory of the entries in a subdirectory (say, PHOTOS) on drive D, type D:\PHOTOS\ on the bottom line.

Then select the ? icon. Move the cursor to the desired filename and press either button to highlight the name. Move the cursor to the box that says OK and press either button. The pop-up menu will reappear with the selected filename on the bottom line.

Scrolling Though the Directory

When there are too many entries in a directory to be displayed at one time, you can select the up or down arrows (on either side of the GO box) to access additional files. The word TOP will appear at the top of the first page; the word BOT will appear at the bottom of the last page.

For more information about the directory function, refer to Chapter 3.

Deleting Files

The ⊠ icon allows you to delete files from disk. First select a file type from the second line. Enter the filename you want to delete on the bottom line. Move the cursor to this icon and press either button to display this message:

Delete file?

left=YES right=NO

Press the appropriate button for the desired action

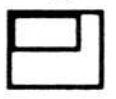
Note that if you remove a CUT file, you may wish delete its corresponding PAL file.

Influences

None

Special Considerations

Placing Images or Text in Virtual Page Mode (if enabled)

Click on the  icon with the right button if your image or text is larger than the screen size but equal to or smaller than your current virtual page. The virtual page will be displayed and your cursor will be a box the size of the image. Press the left button to set the image. You will be returned to the icon screen

Adapting Your Word Processed Text Files

You can use your word processed text files with more ease in Dr. Halo IV if you keep the following points in mind:

- Remember to press <Enter> after the last line of text in the word processor, or that line will be skipped when the text is loaded onto the Dr. Halo IV page.

- Remove any formatting commands that are specific to the word processing package you're using.

- Make sure the text file is an ASCII file, has the extension .TXT, and is loaded in the Dr. Halo IV directory.

- You need to select the font attributes for the text file before you attempt to retrieve it (unless you wish to use the default font attributes).

- Choose a fatter line width to add to the appearance of most text styles.

- Remember that all text will appear left justified and ragged right in Dr. Halo IV proportional fonts, even if it appears justified on both sides in the word processor.

PRINT

(PRINT) allows you to print the entire image or a selected area of interest, and allows you to set some printer attributes from within Dr. Halo IV.

Default

Select with the left button to send the contents of the page to the printer.

Upon selection, you will see the following prompt:

Print Screen?

left=YES right=NO

Press the appropriate button for the desired action. (Note: Printing can be aborted by pressing <Ctrl-Break>.)

The print will be as large as your printer is capable of printing while keeping the correct aspect ratio. ("Correct aspect ratio" means that the image will be exactly to scale. That is, circles will be circular and squares will be square.)

Pop-Up Options

Select the icon with the right button to access the pop-up menu, as shown below:

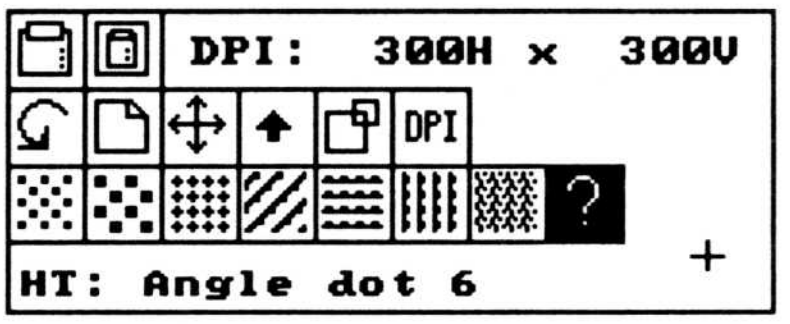


Figure 6-3. The Print Pop-Up Menu

is the same as the default. (See DEFAULT above.) Activate the function with this option when changing printer attributes.

Printing an Area of Interest

allows you to print a specific area of interest. Select this option with either button. The pop-up disappears and a rubberband box appears in the drawing window. Size the rubberband box over the desired area and press the left button.

Upon selection, you will see the following prompt:

Print ?

left=YES right=NO

Press the appropriate button for the desired action. The selected area is sent to the printer.

Changing Printer Attributes

The second line in the pop-up menu allows you to adjust printer attributes before sending your image to the printer. You can select any one, any combination, or all of the options. (If the option is toggled "off" the icon is black; if "on," the icon is white.)

Orientation

rotates the image 90 degrees before print. An image without rotation is portrait mode. When rotation is applied, the image is printed in landscape mode.(DEFAULT: off)

Black and White Reversal

performs Black/White reversal. That is, in the final print, black will print as white and white will print as black. All colors other than black and white are unaffected. This feature may be useful if your image has a black background that you don't want printed. (DEFAULT: off)

Note that Black/White reversal is accomplished by swapping the colors on the far left and far right of the palette (black and white, respectively, on all default palettes). The palette editor allows you to reprogram these values to other than black and white. See Palette Editor in Chapter 5 for more information.

Centering the Image

✣ causes the image to be centered on the printer page. (DEFAULT: on)

Formfeed

⬆ causes an automatic form feed at the end of the print. (DEFAULT: on) Note: for some printers it may not be possible to turn the form feed attribute off.

Scaling the Image

🗗 enlarges the image to fit the entire printer page, otherwise it is printed the exact size in relation to the page. That is., one pixel on the screen equals one dot on the printer. (DEFAULT: on)

Choosing the Dots Per Inch

DPI brings up a menu showing the dots per inch choices of your printer. Note that the dots per inch choices is dependent on your printer. The menu works like the directory menu described in Chapter 3. An example (for the HP Laserjet) is shown below:

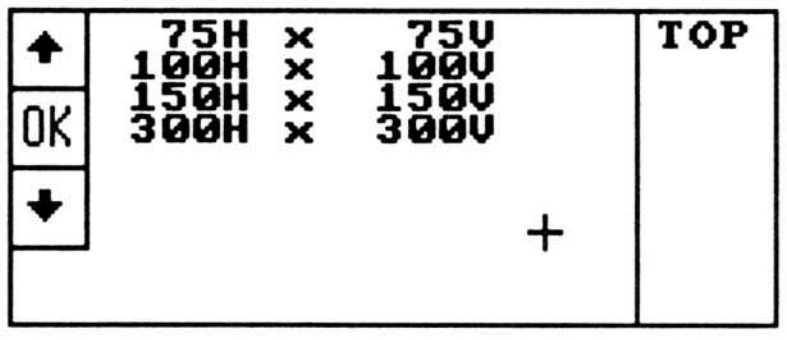


Figure 6-4. The Dots Per Inch Menu

Move the cursor to your dots-per-inch choice and set it with the left button. Click on the OK icon to return to the pop-up menu.

Note that the currently selected Dots Per Inch is shown on the top of the pop-up menu.

Halftone Options

The third line of the print menu allows you to choose the halftone pattern used to represent grays and colors. The name of the current halftone pattern is shown on the bottom of the pop-up menu.

The icons allow you to select from the most common patterns.

? brings up a directory-style menu of other halftone patterns supported by your printer. Patterns that begin "Printer HT" are specific to your printer.

Influences

None

Virtual Page Considerations:

When the Virtual Page is enabled, the entire virtual page will be printed in the default print mode.

Also when the Virtual Page is enabled, an area of interest on the Virtual Page can be selected for printing.

To do so, select and then click on the icon. Position the area of interest on the virtual page and then click with the left button to print.

Note: For images printed from the Virtual Page to retain the correct aspect ratio (for circles to remain circular and squares square), the Virtual Page must have been configured to the printer page in the current image orientation.

TEXT

(TEXT) allows you to add titles, labels and other text to your Dr. Halo IV images.

Default

Select with the left button to activate the function. Move the cursor to the window to add text.

The cursor will appear as a box that represents the size of one character. As you type, your characters are displayed in a box at the top of the window. In addition, the size of the box will increase to represent the size of the text you have typed. You can adjust the size of the text area by rubberbanding the box (for stroke fonts only). You can position the text by moving the pointing device. Press the left button or press Return to place the text on the screen. The text appears in the drawing color.

Important: If you are using the keyboard as a pointing device, you must press <Esc> to switch from the pointing mode to the text mode before entering your text. To return to the pointing mode after entering text, press <Esc> again.

Pop-Up Options

Select with the right button to access the pop-up menu, as shown below:

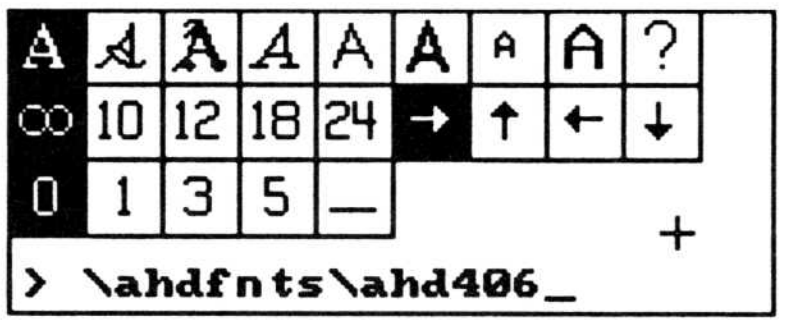
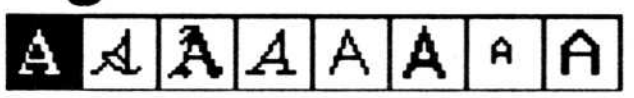


Figure 6-5. The Text Pop-Up Menu

Once you have accessed the pop-up menu, you can choose a font style, font size, print direction, and decide whether to add a dropshadow or underline.

Selecting a Font

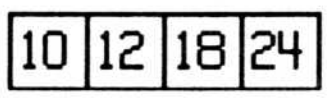
The  icons on the top line of the pop-up display the letter "A" in the eight most commonly used fonts. Select any of those options and the filename of the font will be displayed on the bottom line of the pop-up. See Appendix A for font examples

Select the ? to access a directory of all the Dr. Halo IV fonts. Move the cursor to the desired filename and press either button to highlight the name. Move the cursor to the box that says OK and press either button. The pop-up menu will reappear with the selected filename on the bottom line.

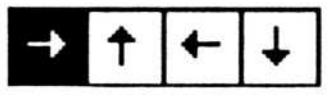
If there are too many entries in the font directory to be displayed at one time, you can select the up or down arrows (on either side of the GO box) to access the additional files. The word TOP will appear at the top of the first page; the word BOT will appear at the bottom of the last page. (Refer to Chapter 3 for a description of directory menus.)

Selecting a Size

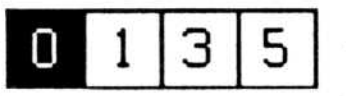
The first five icons in the second line control the size of the text. The ∞ icon is the symbol for infinity and lets you adjust the size of the text by using a rubberband box to represent the character size (as in the default option). This applies only to stroke fonts. (refer to Appendix B for information about each font, including which are stroke and which are bit-mapped).

The  (numerical icons) on that line represent font sizes and can be selected in cases where you want to maintain a uniform size.

Selecting a Font Direction

The  (arrow) icons in the menu represent the four available text directions: left to right, bottom to top, right to left, or top to bottom. The default is left to right.

Dropshadowing

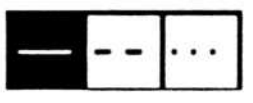
Select one of the dropshadowing icons () to add dimension and depth to your text. The numbers 0, 1, 3, and 5 on the menu represent the depth of the dropshadowing in pixels. (A depth of 0 indicates that dropshadowing is off.)

If dropshadowing is selected, the dropshadowed portion of the text will be drawn first, at your chosen pixel depth and in the foreground color. The "regular" text will be drawn at the cursor position in the drawing color. (See Chapter 4 for a discussion of Dr. Halo IV colors.) The default is no dropshadow.

Underlining

Selecting the — option will cause your text to be automatically underlined in the drawing color (the same color as the text). The default is no underlining.

Influences

Line Style () influences Text

Line Width ( ) influences Text

Hatch Pattern influences text (filled-out parts of enlarged stroke fonts).

The various Color icons influence Text

Special Considerations

To produce as readable text as possible, the line style should be solid.

The most recently selected Text pop-up options remain active until you either select new options or exit Dr. Halo IV. (Pop-ups for most of the other Command Functions do not operate in this manner.)

SCISSORS

(SCISSORS) allow you to cut-and-paste, rubberstamp, or scale portions of the screen.

Default

Select with the left button to access the function. Move the cursor to the window to cut-and-paste.

The cursor will appear as a rubberband box. Size the box around the area desired for cutting and pasting (by moving the pointing device with the right button pressed) then press the left button. (Note that if you attempt to "cut" too large an area, the rubberband box will be constrained to the largest allowable area.) The original area is erased (i.e., changed to the clear color). You have now "cut" the desired area. Move the cursor to the desired new location and press the left button to "paste" the area. (Note that a box the size of the cursor remains around the "cut" area until you "paste" the image elsewhere.)

Pop-Up Options

Select with the right button to access the pop-up menu, as shown below.

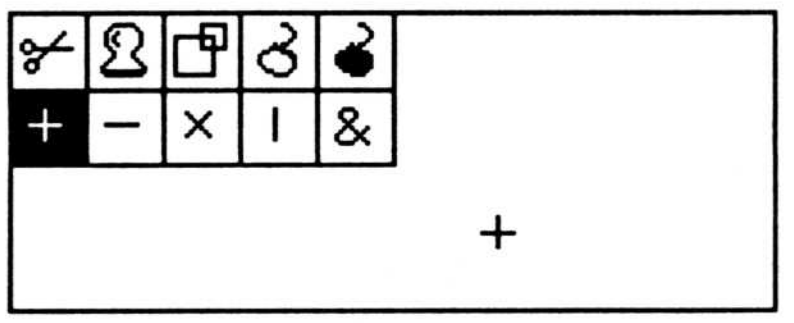


Figure 6-6. The Scissors Pop-Up Menu

Combine Modes

The icons on the second line of the pop-up are the combine mode options. These modes affect how the information for the image being pasted is combined with the image information currently on the screen.

Select one of these modes in conjunction with the first three options on the first line.

Pasting an Exact Copy of the Image

+ is the default mode. It creates a positive (photographic) reproduction of the new image by replacing pixels in the new image area with the pixels from the first image area. Select this option if you want your image to be reproduced exactly as it was drawn.

Pasting an Inverse Copy of the Image

− creates a negative reproduction of your image. For the default palette, this is similar to a photographic negative (for example, black and white in your original image will be reversed in the new image area).

Note that this works by flipping your palette, such that the rightmost color on the palette is now the leftmost, the color next to the rightmost color is now next to the leftmost color, etc. In other words, if your palette is not a linear progression from the leftmost color to the rightmost, this will not create a true photographic negative.

Pasting With Pasted and Underlying Images Visible

× creates the new image in an "exclusive/or" fashion. That is, the new image area colors are a result of combining the colors of the original area with the colors in the new location. This allows the original image to remain visible even when another image is superimposed. (The original image remains visible, but its colors change.)

Note that if you attempt to place the same image in the same location in this mode a second time, the image disappears.

Pasting With Background Dropping Out

| creates the new image in a "matte" or "overlay" fashion. What this means is that the image itself, but not any black background, is placed in the new area. This mode is useful for when you want to cut-and-paste an image from the plain black background to a colored area of the screen.

The color dropped out is always the leftmost color on the palette. This color is black for the default palette.

Pasting With a White Mask and Black Dropping Out

& creates the new image in a logical "and" fashion. The new image combines the colors of the original area with the colors in the new location, but it does this in a different manner from the × option. If a colored image is pasted over black, it remains black. If a colored image is pasted over white, the pasted colors are maintained. Colors pasted over colors combine to form new colors. ("Black" and "white" refer to the color number 0 and the maximum color in the default palette.)

The & allows you to use a black as a mask for the Cut and Paste function. For example, you can create text (or any other pattern) filled with a gradient of colors. Do this by copying a gradient created on a black background on top of white text (or other pattern) on a black background. Refer to Chapter 5 for a tutorial showing how to use this to create text with a rainbow of colors.

Command Options

Cutting and Pasting Once

✂ is the default option (see DEFAULT above)

Copying and Pasting

(Rubberstamp) allows you to make multiple copies of a selected area. Select the image area in exactly the same way as in the cut-and-paste option.

When you move the rubberband box to a new area and press the left button, you place a copy of the original image area without erasing the original. Move the rubberband box to another area and press the left button to make another copy. Repeat the process as many times as desired.

Enlarging or Shrinking

(Scale) allows you to enlarge or shrink a portion of the screen. Size the rubberband box over the desired area and press the left button to capture the image. Choose a new size (by moving the pointing device with the right button pressed). Move the scaled box to a new location and press the left button to place the newly-sized image. Note that the original area is not erased.

Copying and Pasting an Irregular Area

(Lasso) is simply a more specific method of cutting and pasting. Instead of capturing a rectangular area, you can trace the exact outline of the area desired for moving.

When is selected, the crosshair cursor appears. Trace the desired area by moving the cursor with the left button pressed. When the outline is complete, press the right button. Move the outline (by moving the cursor with no buttons pressed) to the desired location and press the left button to place the image. Or, move the cursor with the left button pressed to view the contents as you move, then release the left button to place the image. In either case, after the image has been placed, press the right button to plant the image.

Note: The functions in a matte-style of paste. That is, if you are lassoing an area that has an open (black) interior (for example, the letter "O"), the interior will be transparent when you move it. In other words, the original image will be displayed through the open area once you move the new, lassoed image. If you don't want this effect, you must first paint the open interior with a color that isn't black.

functions identically to but in "Cut and Paste" fashion. That is, use this option if you wish to trace a specific area, lift it from its position, and move it elsewhere on the page. The original area is cleared to the currently selected Clear color.

Influences

Brush ( ) influences the Scissors function.

PAINT

(PAINT) allows you to fill an area with a selected color or hatch pattern.

Default

Select with either the left or right button to access the function. Move the cursor to the drawing window to paint.

uses the hatch pattern or color displayed in the lower half of the Current Color icon for filling areas.

To fill a closed figure, position the cursor inside the area and press either button. It is important that areas to be filled have solid borders. Otherwise, the fill pattern will "spill" out of the figure.

(Select the desired hatch pattern by clicking with the right button on the Current Color Icon to bring up the hatch patterns and then moving the cursor to the appropriate icon and pressing the left button.)

Influences

The various Color icons influences Paint.

Hatch Pattern influences Paint.

Special Considerations:

You should not attempt to paint pattern over pattern. Generally, Dr. Halo IV will refuse to execute the request or possibly do so incompletely.

AIRBRUSH

(AIRBRUSH) allows you to spraypaint your screen in a variety of densities and colors.

Default

Select with either button to access the pop-up menu.

Pop-Up Options

Select with either button to access the pop-up menu, as shown below:

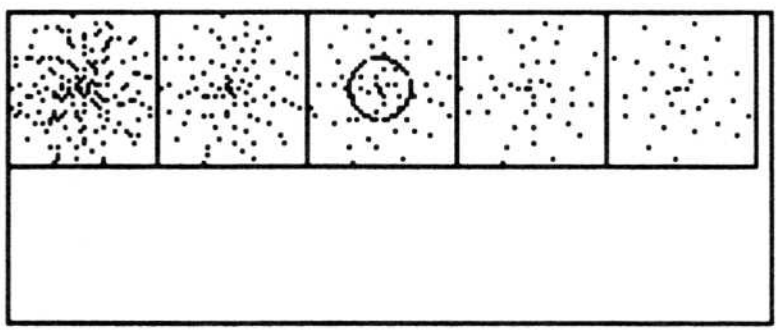


Figure 6-7. The Airbrush Pop-Up Menu

The pop-up menu provides a choice of five airbrush densities. Move the cursor to the desired density to select. To adjust the size of your airbrush, move the pointing device with the right button held down. Click the left button to exit the pop-up.

The airbrush will spraypaint in the color displayed in the Current Color icon. You can change this color at any time by moving the cursor to a color icon and pressing the left button.

Airbrush Modes

The airbrush operates in two modes: matte and exclusive/or.

The MATTE (overlay) mode is invoked by pressing the left button while you are spraypainting. In this mode, Dr. Halo IV paints only the dots in the airbrush pattern on the screen. If you continue to paint over an area, that area will fill with the chosen color approaching a solid fill.

The EXCLUSIVE/OR mode is invoked by pressing the right button while spraypainting. If you spraypaint over one color with a second, the two colors will combine to form a third color. If you spraypaint an area twice with the same color, the colors will combine to form the original color. Note that when airbrushing over black (i.e.,index 0 of your palette) this mode is the same as matte mode.

Influences

The various Color icons influence the Airbrush.

Brush ( ) influences the Airbrush.

Special Considerations

You can create your own original airbrush pattern using options in the Scissors menu. Refer to that section for complete details.

PENCIL

(PENCIL) allows you to freehand draw.

Default

Select with either the left or right button to activate the function. Move the cursor to the drawing window to draw.

Pressing the left button while drawing will produce a solid line. Pressing the right button while drawing will produce one dot per press.

Pop-Up Options

None

Influences

Line Style ( ) influences Pencil.

Line Width ( ) influences Pencil.

The various Color icons influence Pencil.

ERASE

(ERASE) allows you to erase or recolor selected areas of your screen.

Default

Select with the left button to activate the function. Move to the drawing window to erase.

The cursor appears on the screen as a rubberband box. Size the box (by pressing the right button while moving the pointing device), move the box to the area you wish to erase, and press the left button. The area inside the box will be changed to the clear color. You can move the eraser with the left button held down for continuous erasure.

Pop-Up Options

Select with the right button to access the pop-up menu, as shown below. Note that the third, fourth, and fifth icons are nearly identical to the sixth, seventh, and eighth. They are described together, below.

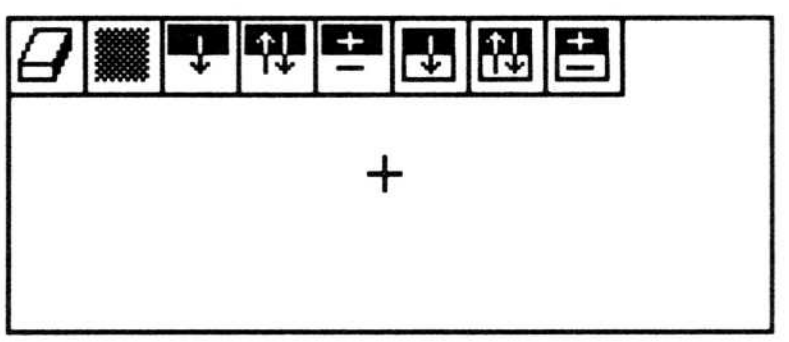


Figure 6-8. The Erase Pop-Up Menu

is the default option. (See DEFAULT above)

allows you to erase to the drawing color. After selecting this option from the pop-up, move to the drawing window and proceed as above. The area inside the eraser box will be changed to the color chosen in the top half of the Current Color icon.

Replacing One Color With Another

and allow you to selectively erase or change one color to another throughout your drawing (or in a specific area of interest). Use for your entire drawing and for a particular area of interest. Make the color you wish to change the foreground color and the replacement color the background color. (See Chapter 4 for a discussion of Dr. Halo IV colors.) If is selected, the pop-up will disappear and all pixels of the foreground color will be replaced with the background color. If is selected a rubberband box will appear. Size the rubberband box over the desired area on the screen. When you press the left button, all pixels within the box that are the foreground color will be replaced by pixels of the background color.

Interchanging Two Different Colors

and allow you to interchange two colors throughout your drawing (or in a specific area of interest). In general, you designate the colors to be switched, then select the appropriate option. Specifically,

1) Make your first color the background color.

2) Make your second color the foreground color. Access the pop-up menu and select or . (If is selected, the pop-up will disappear and the cursor will appear as a rubberband box.

3) Size the box, then press the left button. The change will occur only in the box.)

Creating a Negative

and allow you to create a negative of your drawing (or a specific area of interest). Select or from the pop-up menu. (If you select , the pop-up will disappear and the cursor will appear as a rubberband box. Size the box, then press the left button. The change will occur only within the box.)

Note that this works by exchanging pixel values, such that pixels of index 0 are replaced with pixels of the maximum color index (i.e., 255 on a 256-color device), and vice-versa. Pixels of index 1 are replaced by

pixels of the maximum color minus one, and so forth. In other words, if your palette is not a linear progression from the color 0 to the maximum color, this will not create a true photographic negative.

Influences

The various Color icons influence Erase.

LINES

(LINES) allows you to draw straight and curved lines and polygons.

Default

Select with the left button to activate the function. Move the cursor to the window to draw lines or to construct polygons one side at a time.

Drawing a Single Line

Move the cursor to a desired starting location and press the left button to define the first endpoint of a line. Now, as you move the cursor you will see a rubberband line beginning at that endpoint. When the line is the desired length, press the left button again to place the line on the screen.

Drawing a Polygon

To draw a polygon, use the second endpoint of the first line as the first endpoint of a new line. Move the cursor to another point and press the left button again to place a second line. In this way you can draw a polygon by connecting points. End the polygon by making the last point identical to the first point, then pressing the right button.

Pop-Up Options

Select with the right button to access the pop-up menu, as shown below.

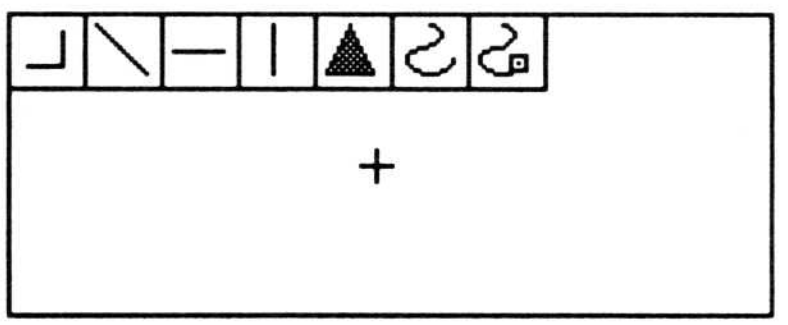


Figure 6-9. The Lines Pop-Up Menu

is the default option (see above)

Alterable Lines

\ allows you to draw straight lines whose length and angles can be altered prior to placement on the screen. Move the cursor to the desired starting point. Press the right button. Now, as you move the pointing device, a rubberband line will appear. Move the cursor with the right button pressed to alter the length and/or angle of the line (The starting point will be anchored). Press the left button to place the line on the screen.

Horizontal and Vertical Lines

— allows you to draw a horizontal line of any length on the screen. Moving the pointing device will move the line around the screen. Moving the pointing device with the right button pressed will change the length. Press the left button to place the line on the screen.

| allows you to draw a vertical line of any length on the screen. Moving the pointing device will move the line around the screen. Moving the pointing device with the right button pressed will change the length. Press the left button to place the line on the screen.

Filled Polygons

▲ allows you to create a filled polygon. Create a polygon one side at a time, as described for ⌟ (the default option). Press the right button and the polygon will be filled with the currently selected color or hatch pattern.

Automatically Generated Curved Figures

ᔓ performs "curve fitting" for a polygon. Create a polygon one side at a time, as described for ⌟ (the default option). Press the right button, and Dr. Halo IV will erase the straight line polygon and draw a smooth-curved figure in its place through the selected points.

Alterable Curved Figures

ᔔ allows you to "drag" a curve by one of its points. First, create a curved line, as described for ᔓ (the previous option). Press the right

button and a small square will appear at the first point of the curve. The square will advance along the points of the curve with each additional press of the left button.

To modify the outline of the curve, position the cursor square at the point at which you wish to change the figure. Move the pointing device with the right button pressed to move the selected point. The curve will redraw as you move.

To exit the option, press the left button until the square reaches the endpoint and finally disappears. Then press the right button.

Influences

Line Style ( ) influences Lines

Line Width ( ) influences Lines

The various Color icons influence Lines

Hatch Pattern influence Lines (in filled polygons)

Brush ( ) influences Lines (in the angled, vertical, and horizontal line and filled polygons only)

Special Considerations

To correct or erase a partially completed polygon move the cursor off the screen and the figure will disappear. If you have already placed the figure on the screen, you will need to use Erase or Undo to remove it.

ROTATE

(ROTATE) allows you to rotate an image in 90 degree increments, and to "flip" the screen or portions of the screen.

Default

Select with the left button to activate the function. Move the cursor to the drawing window to rotate.

The cursor appears as a rubberband box that remains square in terms of pixels. Size the box (by pressing the right button while moving the pointing device), move the box to the area you wish to rotate and press the left button. The area inside the box rotates 90 degrees counterclockwise. Continue to press the left button to make the image rotate in additional 90 degree increments.

Pop-Up Options

Select the icon with the right button to access the pop-up menu, as shown below.

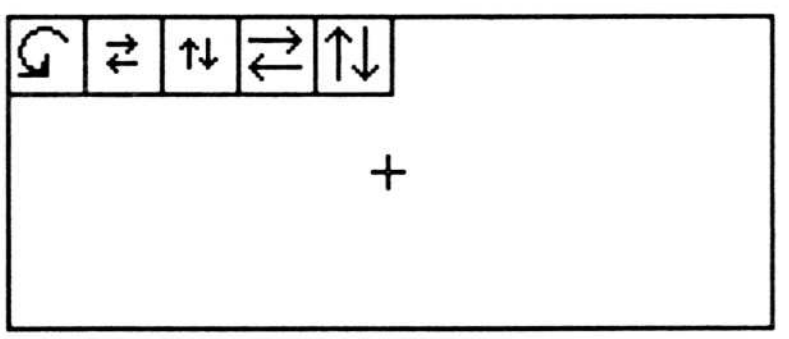


Figure 6-10. The Rotate Pop-Up Menu

is the default option (see DEFAULT above)

Flipping a Portion of the Image

allows you to flip a portion of an image from left to right. Selecting this option will cause a rubberband box to appear on the screen. Size the box, and press the left button. The area in the box will flip from left to right. To restore the area, press the left button again.

To use ⇄ in Virtual Page mode, select ⇄, then select ▭ with the right button. When the screen changes to Virtual Page mode, size the box and press the left button. The area in the box will flip from left to right as before.

↑↓ allows you to flip a portion of an image from top to bottom. Selecting this option will cause a rubberband box to appear on the screen. Size the box, and press the left button. The area in the box will flip from top to bottom. To restore the area, press the left button again.

To use ↑↓ in Virtual Page mode, select , then select ▭ with the right button. When the screen changes to Virtual Page mode, size the box and press the left button. The area in the box will flip from top to bottom as before.

Flipping the Entire Screen

⇄ allows you to flip the entire screen (or Virtual Page, if enabled) from left to right. Selecting ⇄ causes the function to immediately execute. Select ⇄ again to restore the screen.

↑↓ allows you to flip the entire screen (or Virtual Page, if enabled) from top to bottom. Selecting ↑↓ causes the function to immediately execute. Select ↑↓ again to restore the screen.

Influences

None

Special Considerations

Option ↺ (the default) cannot be used in Virtual Page mode.

Flipping the screen or a portion of the screen can take a considerable amount of time, especially if the Virtual Page is enabled.

Flipping the screen or a portion of the screen horizontally takes significantly longer than flipping vertically. This is normal, and is due to the graphics hardware construction.

FATBIT EDIT

(FATBIT EDIT) allows you to edit an area of the screen pixel by pixel. You can also create original symbols to be used as hatch patterns.

Default

Select with the left button to activate the function. Move the cursor to the window to edit.

The cursor appears as a rubberband box. Size the box around the area desired for editing (by moving the pointing device with the right button pressed) and press the left button. The sizing of the box will be somewhat constrained; this is normal. Dr. Halo IV will display two views of the selected area in the upper left corner of the window, as shown below:

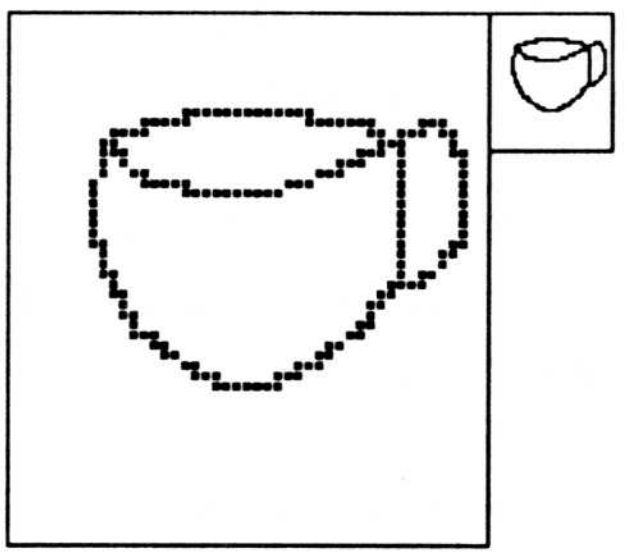


Figure 6-11. The Fatbit Editing Windows

The small view represents the actual size of the selected area; editing changes will be displayed in this box as they are made. The large view is the actual pixel editing area and is a magnified view of the selected area.

Editing consists of painting pixels with selected colors:

- To change a pixel to the clear color, move the cursor to that pixel and press the right button.

- To change a pixel to the drawing color, move the cursor to the pixel and press the left button. (You can select a new drawing color from the image while in default Fatbit Mode and with Fatbit color-selection icons—see below.)

When editing is complete, move the cursor to the small view box and press either button to return to the Dr. Halo IV main menu.

Pop-Up Options

Select the icon with the right button to access the pop-up menu, as shown below:

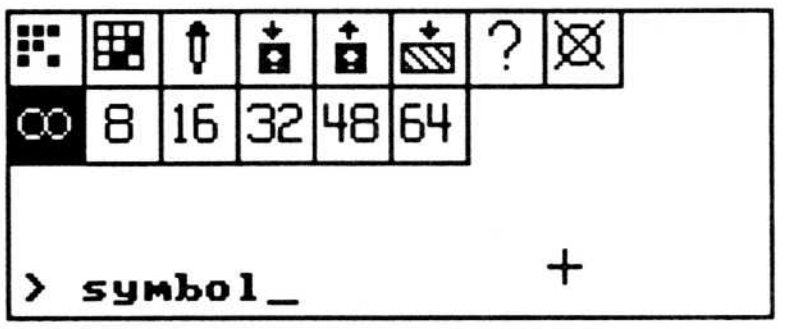


Figure 6-12. The Fatbit Pop-Up Menu

⁘ is the same as the default option (see above).

Choosing an Editing Area Size

∞ is the infinity symbol and lets you adjust the size using a rubberband box.

8 | 16 | 32 | 48 | 64 represent fixed editing area sizes. For example, selecting the 32 option then selecting the Fatbit option will fix the editing area size to 32 x 32 pixels.

Using Fatbit Edit To Select Colors From the Image

You can use Fatbit Edit to select a new drawing color from the image (for use in Fatbit Editing or general editing). You can also use the Fatbit area to select new background and foreground colors from the image for use in general editing.

Selecting a Drawing Color From the Image

To select the drawing color from the image, you will need to use the Alternate Fatbit editing mode. There are two methods for selecting the Alternate Fatbit editing mode.

1. Select with the left button (i.e. the default). When the fatbit editing area appears, click the cursor on the current color icon.

Or

2. Access the Fatbit pop-up menu. Then select (the alternate fatbit editing icon).

In either case, the current function icon will be .

When Fatbit is in alternate fatbit editing mode, clicking with the right button over any pixel changes the drawing color to the color of that pixel. Then, clicking with the left button changes the pixel the cursor is over to the drawing color.

To return to regular Fatbit editing mode, click on the current color icon.

Once the current color is selected, you can exit the Fatbit editing mode (or continue Fatbit editing) and the drawing color selected in Fatbit will remain the current drawing color.

Selecting Foreground & Background Colors from the Image

Fatbit editing can be used to select new foreground and background colors.

First, access the Fatbit pop-up. Then select (the eyedropper). Now, when you click on any pixel in the fatbit edit area, the pixel does not change, but the foreground or background color icon is updated.

Clicking with the right button changes the background color to the color of the pixel under the cursor.

Clicking with the left button changes the foreground color to the color of the pixel under the cursor.

Once the foreground and background colors are selected, you can exit the Fatbit editing mode.

Symbols

You can use the Fatbit Edit options to create a symbol that can be stored and then retrieved from disk and loaded as a hatch pattern.

Creating a Symbol

First, use any editing options to create the symbol to be stored and retrieved for use as the repeating pattern in the hatch pattern. When the symbol is complete, access the Fatbit pop-up menu. The bottom line of the pop-up identifies the current symbol file.

To enter a name for storage or retrieval, use the backspace key to delete the previous filename (initially "symbol"), and type the filename. (Remember, if you are using the keyboard locator, to first press <Esc>.)

Storing a Symbol

 allows you to store the symbol on disk. Enter the desired filename. Then select with either button.

- If you select the icon with the left button, the symbol will be stored in the original colors.

- If you select the icon with the right button, the symbol will be stored in black and white only. If you are working in a graphics mode with more than two colors, all non-black colors will be saved as white. This allows you to transfer symbols between different color resolution modes.

Retrieving a Symbol

 allows you to retrieve a stored symbol and place it on the screen. First, enter the desired filename on the bottom of the Fatbit Pop-up menu. Then, select the icon. The pop-up will disappear and a box will appear in the window. This box represents the SYM file. Move the box to the

desired location and press the left button. The image will be placed on the screen.

Load a Symbol as a Hatch Pattern

⛆ allows you to load a stored symbol as a hatch pattern.

First, enter the desired SYM filename on the bottom line of the Fatbit pop-up menu. Select ⛆ with either button. The symbol will be placed on the hatch pattern line replacing the "eyeball" hatch pattern. You can then use this hatch pattern for filling and painting. (See the Color Selection Icon section in this chapter and refer back to Chapter 4 for more information about hatch patterns.) The "eyeball" hatch pattern is the one on the lower right in the figure below.

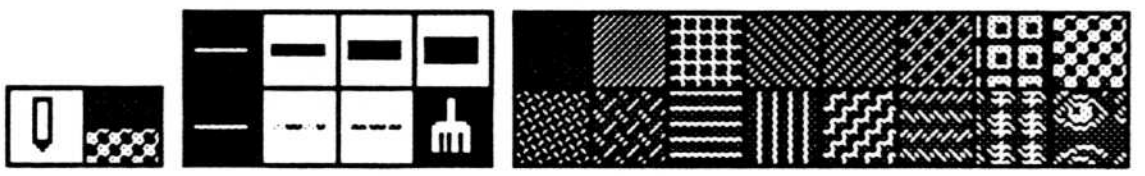


Figure 6-13. Location of the Eyeball Hatch Pattern

Selecting a Symbol from the Directory

An alternative to typing filenames when storing, retrieving. or loading symbol files is to use the ? (directory) icon. Selecting ? will display all SYM files currently stored in the directory. Move the cursor to the desired filename and press either button to highlight the name. Move the cursor to the box that says OK and press either button. The pop-up menu will reappear with the selected filename on the bottom line. Refer to Chapter 3 for a detailed description of directory icons in Dr. Halo IV.

Deleting Symbol Files

⛒ allows you to delete files from disk. First, type the desired filename on the bottom line. Select ⛒ and press either button to display this message:

Delete file?

left=YES right=NO

Press the appropriate button for the desired action.

Influences

The various Color icons influence Fatbit

Brush ( ) influences Fatbit for symbol placement.

Fatbit influences Hatch Pattern

Special Considerations

The maximum size for a hatch pattern is 32 x 32. If a symbol larger than 32 x 32 is retrieved for use as a hatch pattern, only the upper left 32 x 32 portion of that symbol will be used.

While you are in Fatbit editing mode, you can neither access nor edit the hatch patterns.

Undo, if enabled, cannot be accessed during Fatbit edit but can undo Fatbit editing once you leave Fatbit edit mode.

GRID

(GRID) allows you to create visible and invisible grids on the screen.

Default

Select with the left button to activate the function. Move the cursor to the window to draw a grid.

The cursor will appear as a rubberband box. Size the box (by moving the pointing device with the right button pressed), and press the left button. The area inside the box will be divided into a grid of 4 (2 x 2) boxes.

Pop-Up Options

Select with the right button to access the pop-up menu, as shown below:

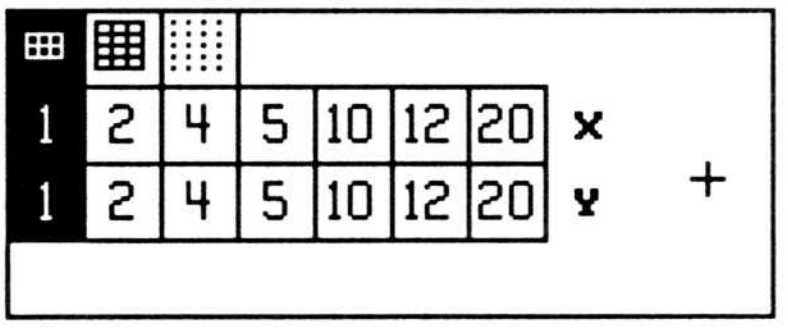


Figure 6-14. The Grid Pop-Up Menu

Choosing X and Y Values for Grids

The pop-up menu grid options create grids in the size specified by your selection of numbers in the second and third lines of the pop-up menu. The X value is the number of grid lines drawn horizontally; the Y value is the number of grid lines drawn vertically. The default for a grid option from within the pop-up is a 1 x 1 grid.

works exactly the same as the default (see above), except that you can select X and Y values.

Creating a Full Screen Grid

▦ allows you to create a grid that covers the entire screen area. Select this option, select the X and Y values, and exit the pop-up. The full screen grid will automatically be drawn. (If you are working in the virtual page mode, the grid will be drawn on the entire virtual page)

Creating an Invisible Snap Grid

⁞⁞⁞ creates an invisible snap grid which controls the entire screen display. The invisible grid controls most of the drawing and editing functions by making the intersection points of the grid the only valid drawing points. That is, when you draw with the invisible grid turned on, the cursor will not move smoothly, but "jump" from intersection to intersection.

In this option, the X and Y values work a little differently in that they represent the number of pixels between points. (For example if X = 4 and Y = 4, you will only be able to move to points whose coordinates are multiples of 4.)

To disable the invisible grid, access the ▦ pop-up menu, select ⁞⁞⁞, select X and Y values of 1, and exit the pop-up.

Influences

Line Style (— - - ···) influences visible grids

Line Width (— ▬ ▬ ▬) influences visible grids

The various Color icons influence visible grids.

Special Considerations

▦ can take a considerable amount of time to draw if the Virtual Page is enabled.

Suggestion

Use the invisible grid to draw identically sized and placed circles and squares (e.g., for an organization chart, perhaps).

CIRCLE

(CIRCLE) allows you to draw hollow, solid, and filled circles or ovals and circular-shaped gradients.

Default

Select with the left button to access the function. Move the cursor to the window to draw a circle.

The cursor will appear as a circle. The center point will be marked by the crosshair cursor or a single point, depending on the size of the circle. Size the circle (by moving the pointing device with the right button pressed), and press the left button to place the circle on the screen.

Pop-Up Options

Select with the right button to access the pop-up menu, as shown below.

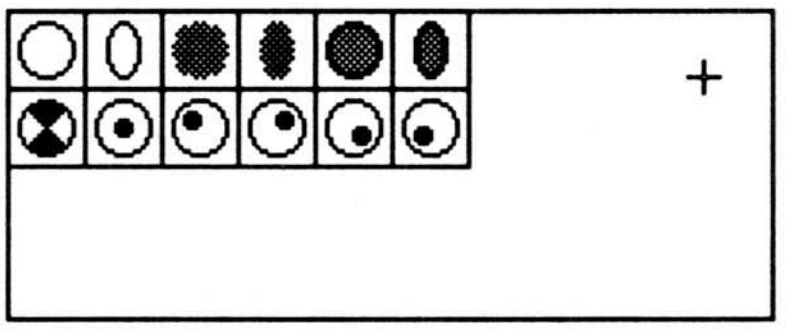


Figure 6-15. The Circle Pop-Up Menu

Drawing Circle and Oval Outlines

○ is the default option (see above)

0 allows you to size and draw ovals.

Drawing Solid Circles and Ovals

● allows you to draw a solid circle. The circle is filled with the color or hatchstyle displayed in the bottom half of the current color icon.

● allows you to draw a solid oval. The oval is filled with the color or hatchstyle displayed in the bottom half of the current color icon.

Drawing Outlined Solid Circles and Ovals

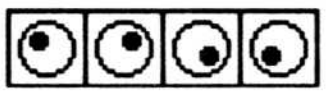
allows you to draw a solid circle with border in the current width. The circle is outlined in the drawing color, and filled with the color or hatchstyle displayed in the bottom half of the current color icon.

allows you to draw a solid oval with border in the current width. The oval is outlined in the drawing color, and filled with the color or hatchstyle displayed in the bottom half of the current color icon.

Drawing Circular-Shaped Gradients

allows you to draw a circular-shaped radial gradient. The foreground color is most intense at the top and bottom. The background color is most intense on the left and right. The two colors gradually approach each other at a 45 degree angle. See the Palette/Gradient section of this chapter for more information on gradients.

allows you to draw a filled sphere in which the foreground color is most intense in the middle of the sphere and gradually changes to the background color around the edges.

 allow you to draw filled spheres in which the most intense point of the foreground color is slightly off center. The foreground color gradually changes to the background color at the edge of each sphere.

Influences

Line Width ( ) influences , , , and circles.

The various Color icons influence circles.

Hatch Pattern influences , , , and circles.

Brush ( ) influences circles.

Special Considerations

Circular-shaped gradients can take a considerable amount of time, especially in Virtual Page mode. Larger circles take longer than smaller ones.

The appearance, both on screen and after printing, of the gradient circles is dependent on your graphics device.

RECTANGLE

(RECTANGLE) allows you to draw hollow, filled, and 3-D rectangles, and rectangular-shaped gradients.

Default

Select with the left button to access the function. Move the cursor to the window to draw a rectangle.

The cursor will appear as a rectangle. Size the rectangle (by moving the pointing device with the right button pressed), and press the left button to place the rectangle on the screen.

Pop-Up Options

Select with the right button to access the pop-up menu, as shown below.

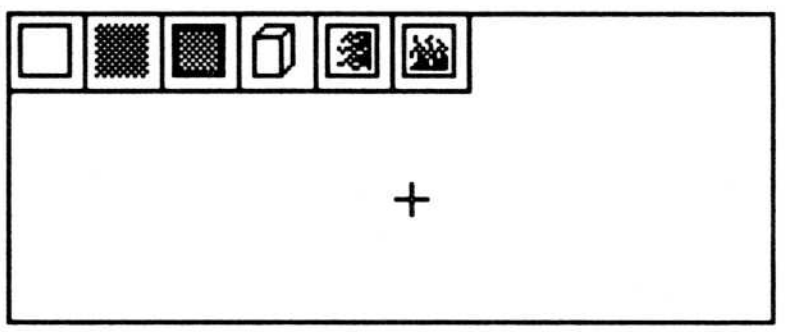


Figure 6-16. The Rectangle Pop-Up Menu

☐ is the default option (see above).

Drawing Filled Rectangles

■ allows you to draw a filled rectangle. The rectangle will be filled with the color or hatchstyle displayed in the bottom half of the current color icon.

■ allows you to draw a filled rectangle with a different colored border. The rectangle will be outlined in the drawing color in the current width and linestyle, and be filled with the color or hatchstyle displayed in the bottom half of the current color icon.

Drawing a 3-Dimensional Bar

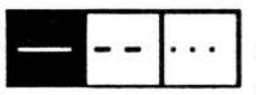
allows you to draw a filled three-dimensional bar. Size and place the first rectangle on the screen as in the default option. Then, keeping the size the same, place the second rectangle (usually at an angle from one of the corners of the first) on the screen. Dr. Halo IV will connect the two rectangles to create a solid three-dimensional bar.

Drawing Rectangular-Shaped Gradients

allows you to draw a rectangular-shaped horizontal gradient. The background color is most intense on the left and the foreground color is most intense on the right. The color gradually changes from one to the other. See the Palette Editor section of Chapter 4 for more information on gradients.

allows you to draw a rectangular-shaped vertical gradient. The foreground color is most intense on top and the background color is most intense on the bottom. The color gradually changes from one to the other.

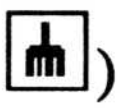
Influences

Line Style () influences , , and , rectangles.

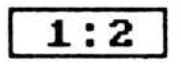
Line Width ( ) influences , , and , rectangles.

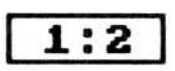
The various Color icons influence rectangles.

Hatch Pattern influences and rectangles.

Brush () influences rectangles.

Pages





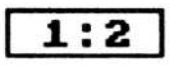
(PAGES) tells you what page, out of how many possible screen pages, is currently being displayed. For example, the icon reproduced here was grabbed from a display that was capable of two screen pages, and page one was the page currently displayed.

Usage

Press the <Page Up> key to display the next page.

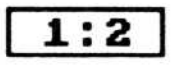
Press the <Page Down> key to display the previous page.

Special Considerations



will not appear if your graphics display and your current display mode do not support multiple pages. Refer to Chapter 2 of this manual for a description of display modes.

Note that some graphics devices support pages for some modes and not others. Also, some modes allow more pages than other modes. Other graphics devices do not support pages for any mode.



is an informational icon only. Clicking on the icon has no effect.

Current Function Icon (Undo)

CURRENT FUNCTION ICON displays the icon of the currently enabled Command Function. Clicking on the icon also triggers ***Undo.***

Usage

Click on the Current Function icon with either button to bring up the following prompt:

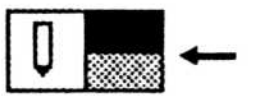
UNDO?
left=YES right=NO

Press the appropriate button for the desired action

Special Considerations

If Undo is not enabled, clicking on the Current Function icon will have no effect.

Refer to Chapter 2 for information on the Virtual Page, and therefor enabling **Undo.** Refer to Chapter 3 for more information about using **Undo.**

Current Color and Hatch Icons 

The Current Color and Hatch icons display the drawing color and hatchstyle. They also control whether the Color Control icons or the Hatch icons are displayed.

Usage

To display the available hatch patterns (if the Color Control icons are displayed, which is the default), click on the Current Color and Hatch Icons with either button.

To display the Color Control icons (if the Hatch icons are displayed), again click on the Current Color and Hatch icons.

During Fatbit editing, clicking on the current color icon changes from normal to Alternate Fatbit editing, or vice versa.

Special Considerations

If a hatch pattern is not manually selected, the hatch pattern will be a solid field of the drawing color.

Line Width and Line Style Icons

The Line Width, Line Style, and Brush icons influence many of the Command Functions.

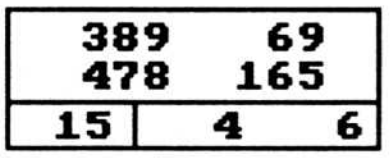
These icons are described in detail in Chapter 3. Please refer to that chapter for a description.

Color Control Icons

The Color Control Icons allow you to select the four colors Dr. Halo IV uses. These are the Drawing Color, the Foreground Color, the Background Color and the Clear Color.

The use of colors in Dr. Halo IV is described in detail in Chapter 4. Please refer to that chapter for more information.

Status Display



shows the location of the cursor, the index of the drawing color, and the indexes of the foreground and background colors.

Usage

The components of the status display are shown in the following figure.

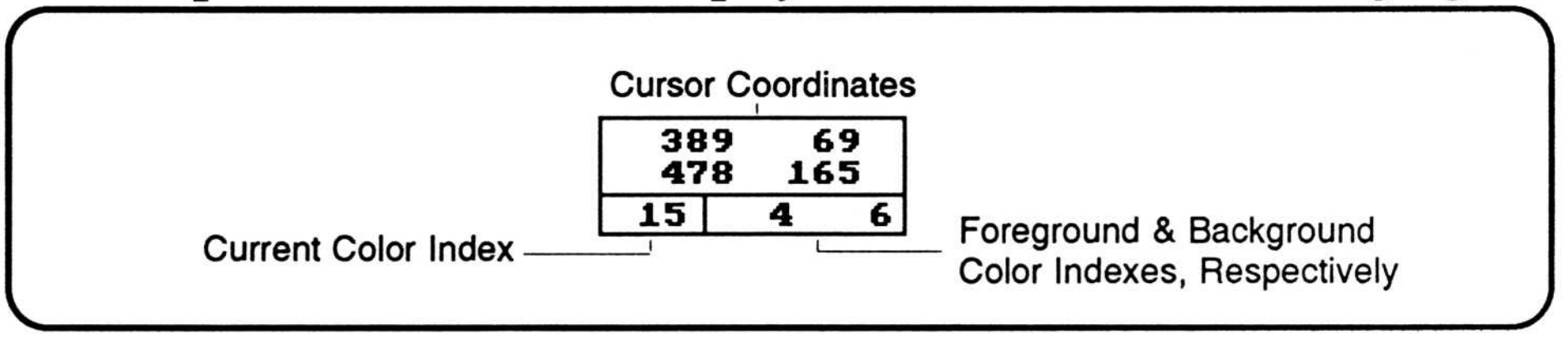


Figure 6-17. Status Components

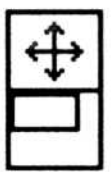
Note that if your cursor is a box, the cursor coordinates will show two values (the coordinates of the top-left and bottom-right corners.) If your currsor is a circle, the cursor coordinates will show three values (the center point and the radius in pixels).

Clicking on the status display will toggle it on and off. Turning it off may speed up mouse response on slower machines.

Special Considerations

Due to space limitations, it is not possible to enable the status display on graphics devices having only 320x200 resolution.

Virtual Page (VRI)



allow you to move around the Virtual Page and access Virtual Page Mode.

Overview

When the Dr. Halo IV Virtual Page is enabled, what you see on screen can be considered a "window" into the actual virtual page. Using the Virtual Page allows you to edit images that are larger than your graphics device can display. This may include images the size of your printer's page. Figure 6-18, below, shows editing an image larger than what you normally can see on the screen.

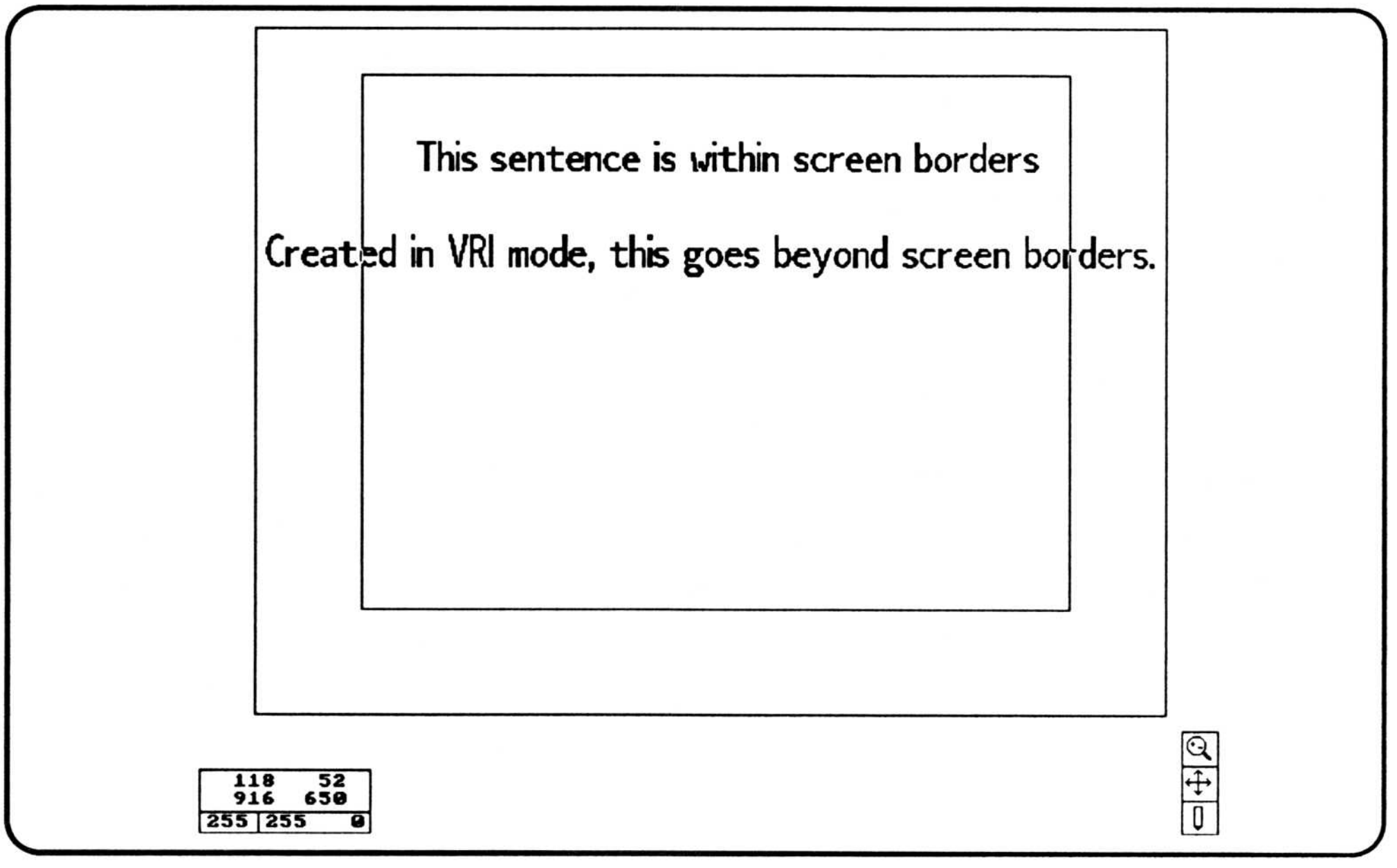
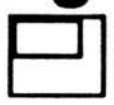
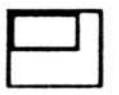


Figure 6-18. Virtual Page Mode

Enabling the Virtual Page also allows you to use **Undo.** Refer to Chapter 3 for a discussion of **Undo** and how it relates to Virtual Page mode. Also refer to Chapter 2 for a discussion of setting up the Virtual Page.

Usage

 shows what portion of the virtual page you currently are viewing. The internal box represents the position of that window on the page.

To select a new area of the virtual page to view, click  with the left button. Move the frame over the area desired and again click with the left button.

This icon also serves as a mechanism to switch to virtual page editing mode.

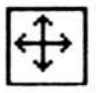
Switching To Virtual Page Editing Mode

To enter virtual page editing mode, select with the right button (with any Command Function active except for Pencil). You can continue to edit on the virtual page itself. To return to the window editing mode, either press the space bar, the tab key, or move the cursor to the left edge of the screen and press the right button.

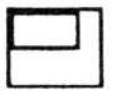
Virtual Page Mode Icons

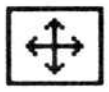
When you are editing on the virtual page, you have three additional icons on the bottom right of the screen. The bottommost of the three icons displays the current function. The other two are descibed below.

To magnify the virtual image, select (the magnify icon) and click with the right button. To reduce the size of the image, click with the left button. You can magnify the virtual page representation up until the point where each pixel is displayed. The border of the virtual page will change from solid to dotted when the virtual page is magnified. All operations normally supported in VRI mode are supported at any magnification.

When the virtual page is magnified, use  (the positioning icon) to move around the virtual page. The icon and its use are the same as the virtual page positioning icon on the main display screen. This icon is disabled if the virtual page is not magnified (indicated by the solid border)

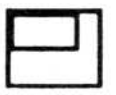
Repositioning the Editing Window on the Virtual Page

To reposition the virtual page on a large scale, select  with the left button. A mock-up of the virtual page appears (an outer box), along with a box that represents the size of the drawing window (an inner box). An example is shown in Figure 6-18 on the previous page. Move the inner box to position the drawing window in another area of the virtual page. Press either locator button to return to the window editing mode.

 also allows you to move your drawing window around within the virtual page, but it does so without leaving window-editing mode.

To move the window 64 pixels, move the cursor to the point of one of the directional arrows on this icon and press the left button.

To move the window to an edge of the virtual page, move the cursor to the point of one of the directional arrows and press the right button.

The small box in the  icon shows the location of the drawing window in relation to the virtual page. As you move your drawing, this icon is updated, as is the drawing window itself.

Special Considerations

To use the Virtual Page, you must have enabled it during setup.

Use of the Virtual Page may slow operation of Dr. Halo IV considerably. Refer to the discussion of Virtual Page in Chapter 3 for more information.

The (Pencil) Command Function cannot be used in virtual page mode.

Printing with the default print icon sends the entire virtual page to the printer. To send only the contents of the drawing window to the printer, use the option from the print pop-up menu.

The (Grid) pop-up menu options that affect the full screen (both visible and invisible) will create grids on the entire virtual page. To create a visible grid only in the drawing window, select the grid

option (the first grid option), choose X and Y variables, move to the drawing window, and size the grid box.

The and options of the pop-up allow you to save and retrieve a full virtual page image. The pop-up's option also allows you to place an image file or a text file on the virtual page.

To do so, select the desired image type and filename and select the icon with the right button. Position the box and press the left button to place the file on the virtual page.

The Grab Utility

Grab allows you to capture graphic displays created by other bitmapped graphics packages for editing and enhancement by Dr. Halo IV. This chapter will describe the functions of the **Grab** utility.

During the configuration process, **Grab** is configured for a particular graphics device and mode, and you choose whether grabbed files are to be CUT or PCX files. Refer to Chapter 2 for information on configuring **Grab** and the rest of the Dr. Halo IV Paint and Imaging Pak during the install process. See Appendix B for more information on reconfiguring **Grab**, including the ability to temporarily change the configuration at the same time you load **Grab.**

For the examples in this chapter, **Grab** is configured for capturing CUT files on an IBM VGA graphics device at a resolution of 640 x 480 by sixteen colors.

Loading Grab

Important: You MUST load ***Grab*** *before running the graphics package containing the image desired for "grabbing." Also, your graphics package must be running in a Dr. Halo IV supported mode on a Dr. Halo IV supported graphics device and both the mode and device must be the same as those for which* ***Grab*** *is configured.*

First, make sure you are in the Dr. Halo IV directory. If you are not, type **cd \drhalo4**↵ (assuming you installed Dr. Halo IV in the default directory on the current drive.)

Then type

grab↵

at the command line. The following message will appear. Note that on your system the message should reflect the device, mode, and file type (PCX or CUT) for your **Grab** set up.

```
GRAB Version 1.0
HALO Professional Screen Grabber Utility
Copyright (c) Media Cybernetics Inc. 1991

GRAB installed.

Images will be grabbed from:
      IBM VGA and compatible (planar)
at the following resolution:
       640 x  480 at  16 colors.

Files will be written to:
      c:\drhalo4\GRAB0001.CUT
```

At the next DOS prompt, run your other graphics package and display the image you wish to capture.

Grabbing An Image

When you have the image you wish to capture displayed on the screen, press **<Ctrl-Alt-G>**. In other words, hold down both the <Ctrl> and <Alt> keys, and then press the "G" on the keyboard.

Your computer's disk light will flash. A short beep will inform you that the image was successfully grabbed.

Each time you load ***Grab****, the default filename for the first grabbed file will be GRAB0001.<ext> where <ext> is either CUT or PCX. The next grabbed file will be GRAB0002.<ext> and so on. The next time you load* ***Grab****, if you have files with these names, they will be overwritten when* ***Grab*** *captures its file. For this reason, you may wish to rename your* ***GRAB*** *files as soon as possible after grabbing them.*

When you exit the graphics package, access the images via the (disk) icon of Dr. Halo IV.

Important: ***Grab*** *will indicate when your disk is too full to store an image. If you hear three short beeps after you press <Ctrl-Alt-G> you should exit to DOS to check your disk space.*

Clearing Grab From Memory

Grab occupies approximately 50K of RAM memory. To free that space, at the DOS prompt in the \drhalo4 directory enter

grab -r↵

You should see the following on the screen.

```
GRAB Version 1.0
HALO Professional Screen Grabber Utility
Copyright (c) Media Cybernetics Inc. 1991

GRAB removed and memory restored to operating system.
```

Grab also is removed from memory when you reboot the system.

Using Images From A Different Mode

In some instances the mode your in which your graphics package is running, though it is a Dr. Halo IV supported mode, may not necessarily match the mode in which you are running Dr. Halo IV and **Grab**. You can still grab an image for successful use in your chosen Dr. Halo IV mode, but you must reconfigure **Grab** to do so. You can reconfigure **Grab** either with the Setup utility or by adding commands at the

command line to the Grab command. See Appendix A for information on both methods of reconfiguring **Grab**.

*Remember that **Grab** will not work if your graphics package is running in a mode not supported by Dr. Halo IV.*

The Viewer Utility

The Dr. Halo IV Imaging Pak's Viewer Utility allows you to load and view images that Dr. Halo IV itself cannot load. It also gives you the ability to edit brightness, contrast, and gamma curves, and then convert the images into formats that Dr. Halo IV can read.

In addition, **Viewer** can export files into a variety of file formats directly supported by many of the popular desktop publishing packages. File export capabilities include a number of sophisticated image conversions.

Viewer provides a variety of halftoning options for printing on most popular black and white and color printers.

Viewer's easy to use interface provides standard windowing system elements, such as command bars, pull-down menus, scroll bars, icons, etc. In addition, images themselves are displayed within movable, sizable image-management windows.

All images are brought into **Viewer** as virtual images. In this way, all of the spatial and color resolution of the image is retained regardless of the limitations of your display adapter. **Viewer** incorporates the M/Color® display technology in order to display the best possible representation of your virtual images, regardless of the display adapter in use. If either expanded or extended memory is part of your system, it is automatically used. Disk-caching (i.e., swapping memory to the hard disk) is employed to allow editing of images of virtually any size.

The virtual image and the window, together, are known as the "workspace". You can scroll to any portion of the image or enlarge or reduce the display, all without altering the image.

If you are using a display with a resolution of 320 x 200, some of the messages and dialog boxes may differ from the examples shown in this chapter, due to the space limitations on such a display.

Also, Viewer treats all four-color displays as if they were monochrome.

Starting Viewer

Type the following at the DOS command line type to start up Viewer:

viewer↵

The Workspace

Images in **Viewer** *are viewed in "workspaces." This section describes workspaces and how to manipulate them.*

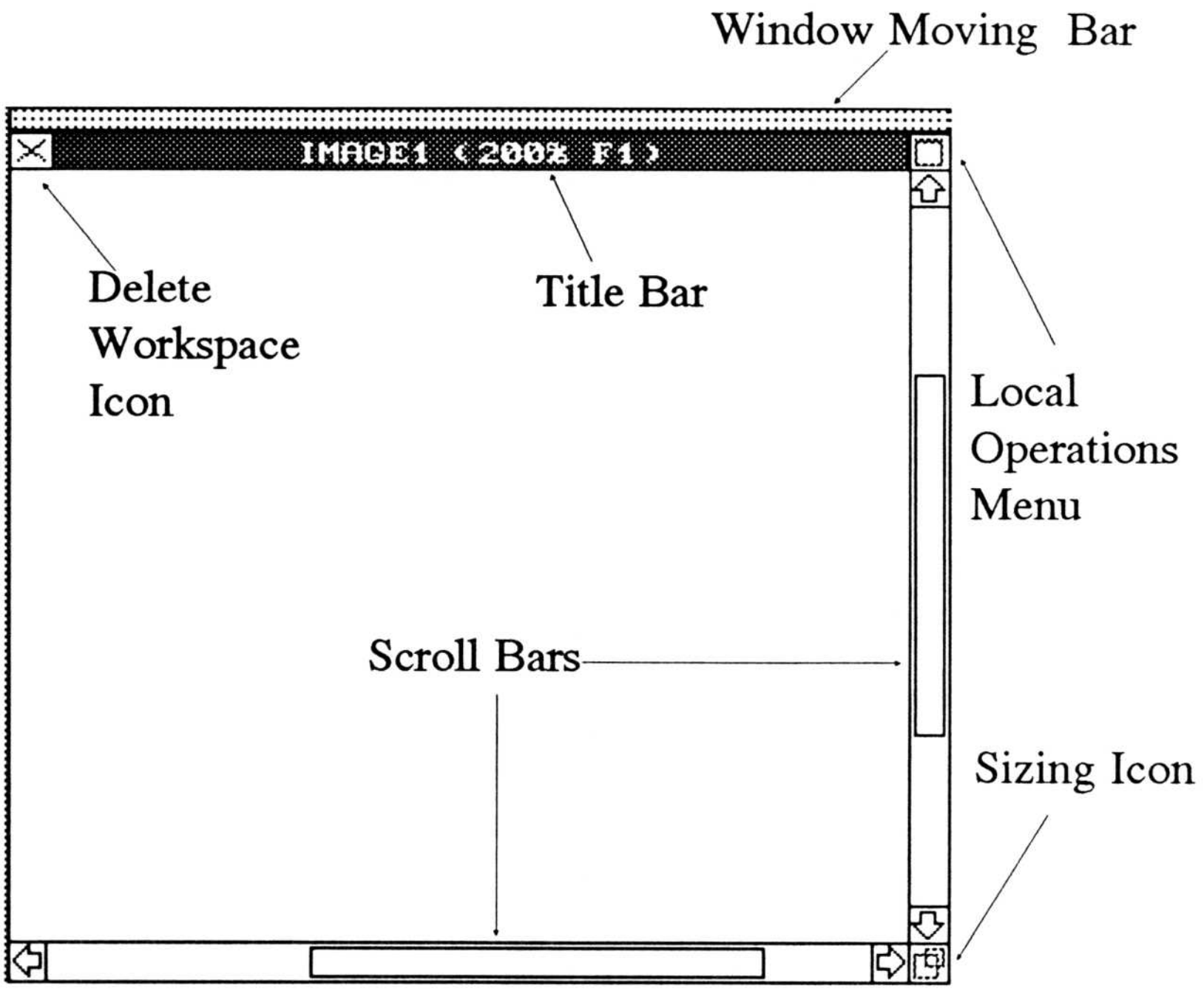


Figure 8-1. The Viewer Workspace

The Workspace: An Introduction

A **Viewer** workspace displays a part or all of an image stored in memory. "Active" is the term used to describe the workspace upon which operations may be performed. Up to ten workspaces may be open at one time, and each is equivalently capable of hosting any operation. Most operations occur in the active workspace, but only one can be active at any time.

A workspace will be created automatically to match the height, width, and resolution of an image. **Viewer** supports three types of workspaces: bi-level, grayscale, and true color.

Workspaces are movable and sizable, allowing you to easily arrange several workspaces on the screen, or to make one as large as the screen (if necessary) for viewing.

The "Active" Workspace

If only one workspace exists, it is the active workspace. If more than one exists, only one may be designated as active (by clicking on the desired workspace window or by pressing the function key shown in the window's Title Bar). All operations affect only the active workspace.

Features that apply to the active workspace include the following. (For complete details on each of the following features, refer to the description in FILE Menu.)

Open File (File Menu) - Creates a workspace, and reads an image file into it.

Save File (File Menu) - Saves the image in the workspace as an image file.

Print (File Menu) - Sends the contents of the active workspace to the printer.

In addition, when working with a gray-scale or color image, the Image Controls Window, and the Gamma Curve map reflect information about the active workspace.

Manipulating The Workspace

The workspace consists of the following elements:

- Title Bar
- Window Moving Bar
- Delete Workspace Button
- Local Operations Menu

- Sizing Icon
- Scroll Bars

Title Bar

The title bar shows the name of the image including the entire path. The current zoom factor also is displayed (See ZOOM FACTOR). Clicking the left button while the cursor is anywhere in a workspace window selects that window as the current workspace. The title bar is red when the workspace is active, and is patterned otherwise.

Also displayed in the title bar is the number of the function key associated with the workspace (e.g., F1). If the workspace is hidden by other windows, pressing its associated function key will bring it to the front and make it active.

Moving the Workspace

The Window moving bar, across the top of the workspace, allows you to move and place the window anywhere on the screen. To move the workspace:

- Place the cursor on the shaded bar across the top of the window.
- While holding down the left button, move the window to the desired location.
- When the window is in the desired location, release the button.

Deleting the Workspace

☒ (the delete workspace icon), located in the upper left corner of a workspace, allows you to delete the current workspace.

To delete the workspace:

- Move the cursor to the delete workspace icon.
- Press the left button.

- You are then prompted if you want to delete the workspace. If you select Yes, the workspace will be deleted.

Options Menu

Access this menu by selecting the icon in the upper right corner of the workspace. This menu gives you access to commands that 1) display information about the workspace size, 2) change the zoom factor and (3) create a frame, delete or adjust a frame, or delete a frame. The appearance of the Local Options menu will vary, according to whether a frame is in use. (See Creating, Adjusting, or Deleting a Frame, later in this chapter.)

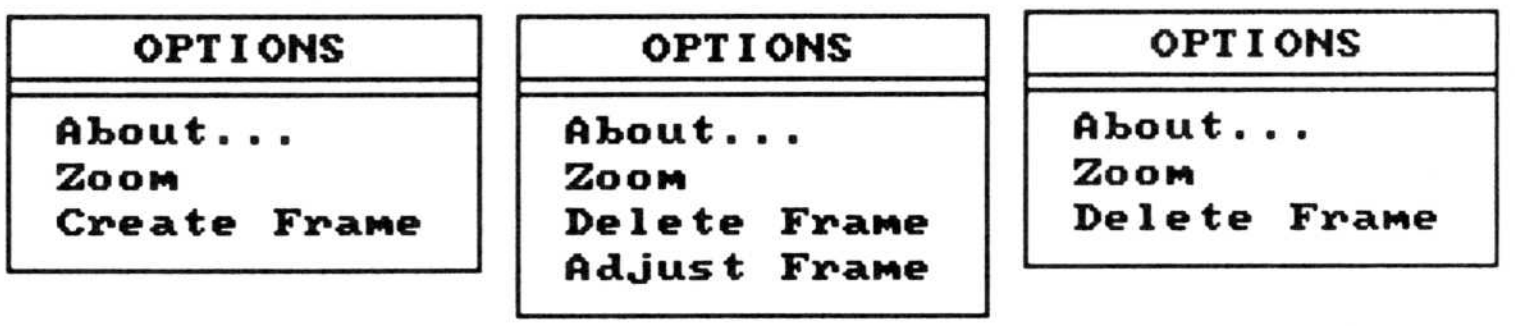


Figure 8-2. Local Operations Menu

Displaying/Changing Workspace Information

To display size information about the workspace:

- Select the **About** option of the **Local Operations** Pulldown menu.

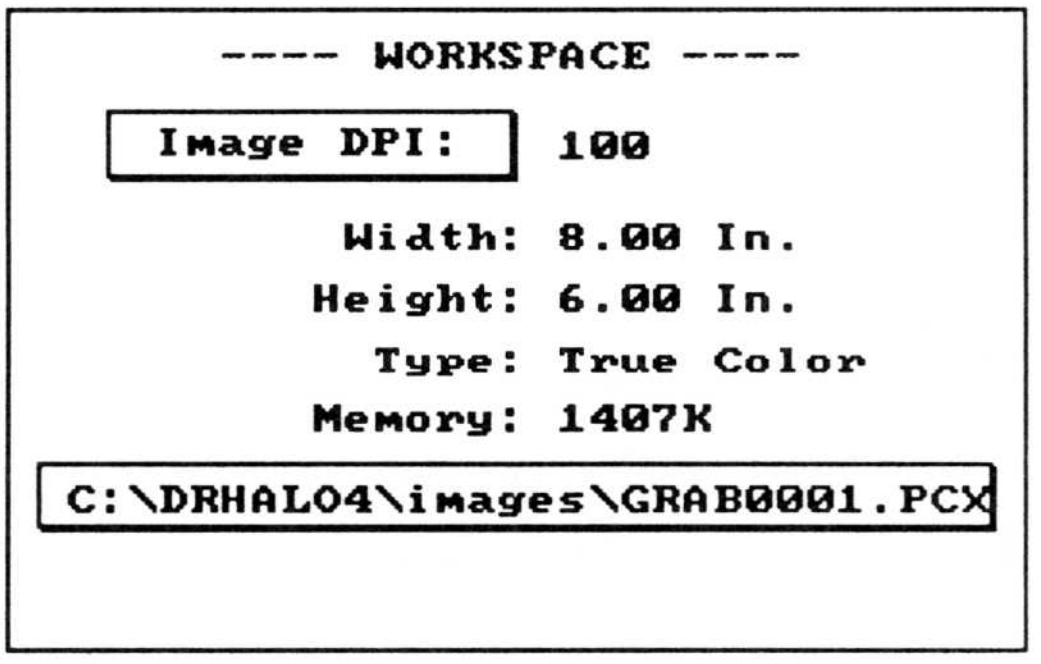


Figure 8-3. "About" Workspace Dialog Box

The dialog box that appears will display the resolution (DPI), width, height, type, and name of the workspace, as well as the amount of

memory used by the workspace. The width and height will be represented in inches.

This dialog also allows you to modify the Image DPI. To modify the Image DPI:

- Click the left button on the Image DPI box.

A dialog box will be displayed that allows you to change the DPI to whatever value you wish. This is particularly useful if you would like to save the image at a spatial resolution that is greater than or less than the current value. Increasing an image's DPI effectively makes the image smaller when printed; decreasing the DPI makes it larger when printed.

Use the text block on the bottom of the Workspace Dialog Box to change the name of the image shown in the Workspace Title Bar.

Press the <Esc> key to exit the dialog box.

Zooming an Image (Making It Appear Larger or Smaller)

To zoom in/out on an image:

- Select the **Zoom** option of the **Local Operations** Pulldown menu. The following menu appears.

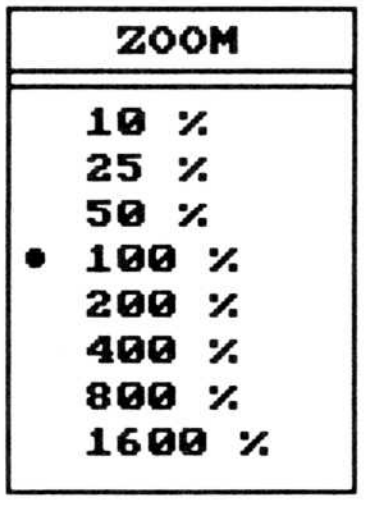


Figure 8-4. Zoom Menu

- Select a new zoom factor from 10% to 1600%.

The workspace will immediately be updated with the new zoom factor.

The zoom factor can also be set with the mouse buttons. When the cursor is within the active image, and you are not positioning a frame, the cursor appears as a magnifying glass (🔍). Clicking the left button increases the zoom factor, and clicking the right button decreases the zoom factor.

Creating, Adjusting, or Deleting a Frame

A frame defines an area of interest within an image. When enabled, the area of interest is the portion of the image saved when you save the image, the portion of the image printed when you print the image, or the portion used to create an optimized palette image. Effectively, using the frame crops the image to the size of the frame.

To create a frame:

- Select the **Create Frame** option of the **Local Operations** Pulldown menu.

The frame appears as a rectangle on the workspace.

- To size the rectangle, "grab" one of the handles to the frame and, with the left button pressed, move the cursor to size the frame.

- To move the frame, move the cursor to the center of the frame and press the left button.

- To set the frame, press the right button when the frame is at the desired size and at the desired location.

- To delete a frame that is positioned on the screen, select the **Delete Frame** option of the **Local Operations** Pulldown menu. The frame will then be deleted from the workspace.

- To adjust a frame that has been positioned and set, select the **Adjust frame** option of the Local Operations Pulldown menu. The frame handles will reappear, and the frame can be sized and positioned as before.

Note: When a frame has not been created, the **Create Frame** option will appear on the **Local Operations** Pulldown menu. However, if the frame has been created, the **Delete Frame** and **Adjust Frame** options will appear on the **Local Operations** Pulldown menu, unless the frame is currently being adjusted, in which case only **Delete Frame** will appear. Refer to Figure 8-2.

Sizing a Workspace

(the sizing icon), located in the lower right corner of the workspace, allows you to enlarge or shrink the workspace window. To size the workspace:

- Move the cursor to the sizing icon.
- With the left button pressed, move the cursor down and to the right (to enlarge the workspace), or up and to the left (to shrink the workspace).
- When the workspace is the desired size, release the left button.

Scrolling in a Workspace

The vertical scroll bars allow you to move an image up and down. In this way, you can move to another area of an image when the image is larger than the workspace window.

To move vertically, place the cursor on the scroll bar. With the left button pressed, move the mouse up or down.

The horizontal scroll bars allow you to move an image left and right. They work in the same way that the vertical scroll bars work.

The Viewer Screen

This section describes the **Viewer** *window environment, and how to work in it.*

Selecting Commands

Viewer commands are organized into menus on a command bar.

To select a command:

- Point to a menu name and press the left button or move the cursor to the desired command option and click the left button. For some menu names, a submenu or a dialog box will appear.

Using Dialog Boxes

Viewer will display a dialog box when more information is needed to execute a command. The dialog box will contain areas for you to add information either by typing it or selecting options. In addition, the dialog box may contain information you have previously added. Refer to Figure 8-3 for an example of a dialog box.

Text Boxes

The text box is where you type necessary information. Use the backspace key to correct typing errors in a text box, or move the cursor with the mouse to the error. There is a text box on the bottom of the dialog box shown in Figure 8-3.

List Boxes

The list box contains the names of available choices (e.g., filenames). The scroll bar allows you to move through the list of available choices if all available choices don't fit in the list box. See Figure 8-7 for an example of a list box.

Check Boxes and Radio Boxes

Check boxes (☒) and radio buttons (◉) both allow you to change options. Radio buttons allow you to select multiple options from a group, while check boxes allow you to turn options on or off.

The Image Controls Command Window

Upon first entering the **Viewer** environment, the Image Controls Window is visible. It is through this window that you are able to manipulate the brightness and contrast in an image, as well as the color attributes (for color files).

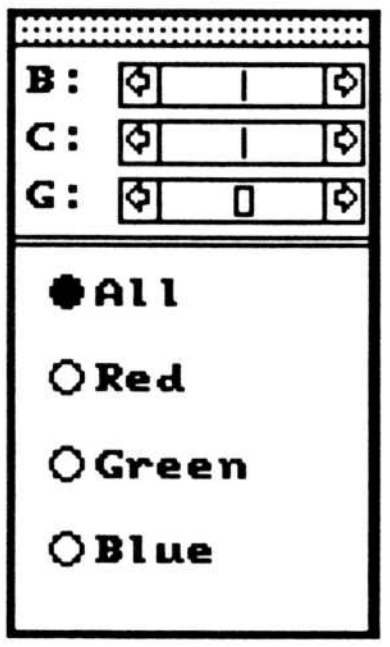


Figure 8-5. The Image Controls Command Window

Adjusting Brightness and Contrast

The top two slider bars in this window allow you to change the brightness and contrast of the workspace.

The top scroll bar controls brightness, while the second scroll bar controls contrast. Sliding the bars left or right increases or decreases (respectively) the chosen effect. The image in the workspace will be constantly updated to reflect the changes.

Note: Any changes made to brightness or contrast may be undone (i.e., reset) via the **Reset B&C** option of the **Color** menu.

Selecting a Gamma Correction Factor

Gamma correction curves are standard correction curves that compensate for differences in the responses of input and output devices. Selecting a

Gamma correction factor will change the contrast in the dark areas of an image. The greater the Gamma value, the greater the boost in dark areas.

To perform a Gamma correction, move the slider in the third scroll bar to the left or right. Moving to the right will add more dynamic range in dark areas, and less in bright areas. Moving to the left will add more dynamic range in bright areas and less in dark areas.

The effects of the Gamma correction will be displayed in the Gamma Curve map. (See "Gamma Curve" map, below)

Note: Any changes made to the Gamma curve may be undone (i.e., reset) by selecting the **Reset Gamma** option in the **Color** menu.

Applying the Brightness, Contrast, or Gamma Changes

For True Color workspaces, the brightness, contrast, and gamma may be adjusted for just one of the color components of the image (red, green, or blue), or may be simultaneously adjusted for all three. Select the desired component or all from the Command Window box.

For Grayscale workspaces, the brightness, contrast, and gamma can be applied only to the intensity of the image. The color component radio buttons are disabled. For bilevel or optimized palette workspaces, no adjustment is possible, and all of the image controls are disabled.

The Gamma Curve Map Window

This window displays the mapping of the Gamma Curve in the active workspace. The default map is linear. This window is display only.

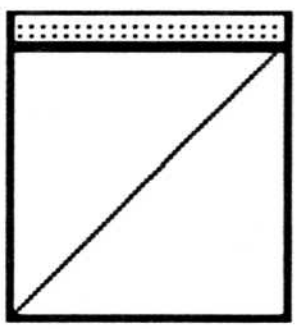


Figure 8-6. The Gamma Curve Map

The gamma curve window always displays the current "all" gamma curve regardless of which color channel radio button is currently active.

Hiding/Showing the Command Windows

To remove a command window (Image Controls or Gamma Curve map) from the screen:

- Double click on the gray bar across the top, or
- Select the appropriate "Hide..." command from the VIEW Pulldown menu on the main command bar.

To restore a command window:

- Select the appropriate "Show..." command from the VIEW menu on the main command bar.

Moving the Command Windows

To move command window to another area of the screen:

- Place the cursor on the shaded bar across the top of the window.
- While holding down the left button, move the window to the desired location.

When the window is in the desired location, release the button.

The FILE Menu

Options in the FILE menu let you load a previously saved image, save the image file, and print the image.

About...

Displays information about the currently loaded version of **Viewer**.

Opening a File

The Open File option of the FILE menu creates a workspace specific to the size of the file, and loads the image into the workspace.

When you choose **Open File**, a dialog box appears which displays filenames and the current file type, and allows preview of a file before loading.

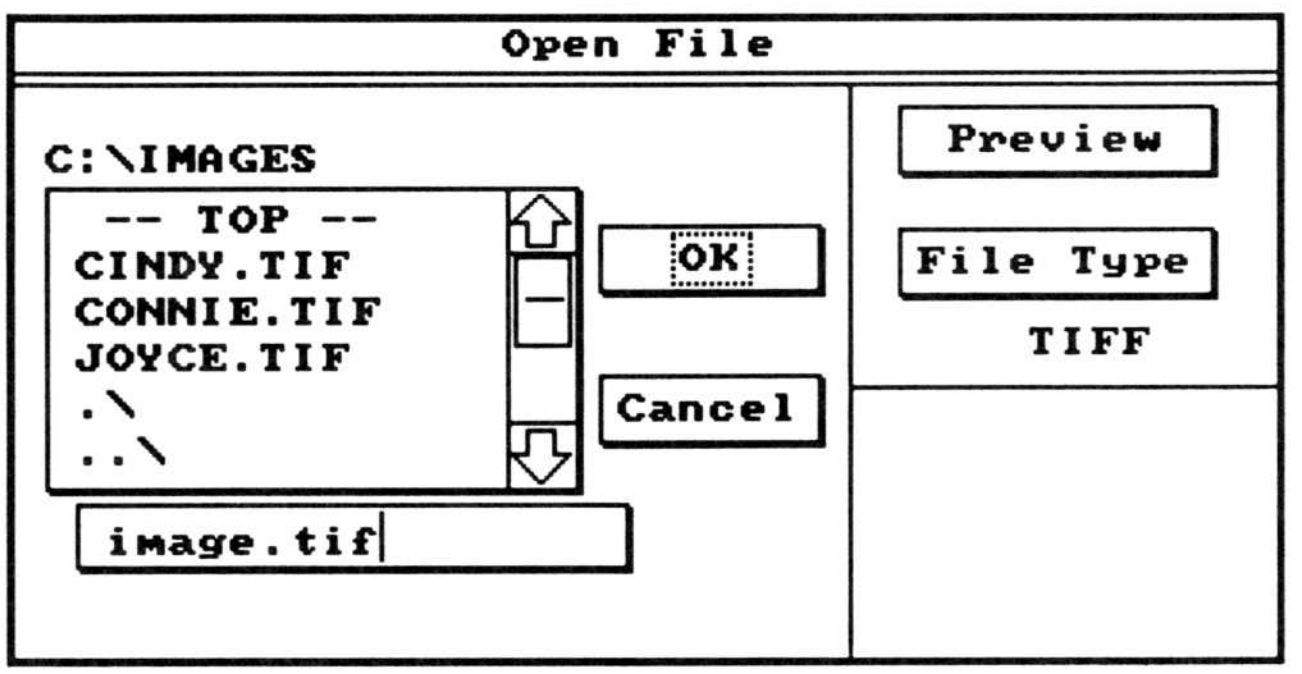


Figure 8-7. The Open File Menu

To open a file:

- Select the desired filename from the file box listing. If the file you wish to open is not in the current directory, or on the current drive, you can scroll down to the drive letters or the **..** entry , and either double click or press "OK" The filename listing changes to show all files or subdirectories in the new directory. If necessary, you can continue to select **..** or new subdirectory names until you are in the desired directory.

- If you wish to select a file of a different type, move the cursor to the File Type box and click the left button. When the pop-up menu appears, select the desired file type (TIFF, HALO Cut, PCX, BMP, and TGA).

- After selecting the desired filename, select OK or press the <Enter> key. A tracking window will show the progress of loading the file. Press <Ctrl-Break> to discontinue loading the file.

Previewing an image file

Viewer allows you to preview an image file before loading all or part of it into a workspace. If you wish to load only part of an image, you must use the preview option to select an Area of Interest.

- Select the **Open File** option and follow the directions given above for selecting the file type and filename, but before clicking OK or pressing <Enter>, select the **Preview** option.

A small low-resolution view of the entire file will appear, along with information about the size and resolution of the image. Press <Ctrl-Break> to discontinue the Preview Loading Process.

- If you wish to load only a portion of the image, resize the box using the handles. Note that the coordinates are updated as you size the box.

- Select OK or press the <Enter> key after previewing and/or selecting a portion of the image.

Saving Files

The Save File option of the FILE menu stores the image inside the frame (if present) or in the workspace in a **Viewer** supported file format.

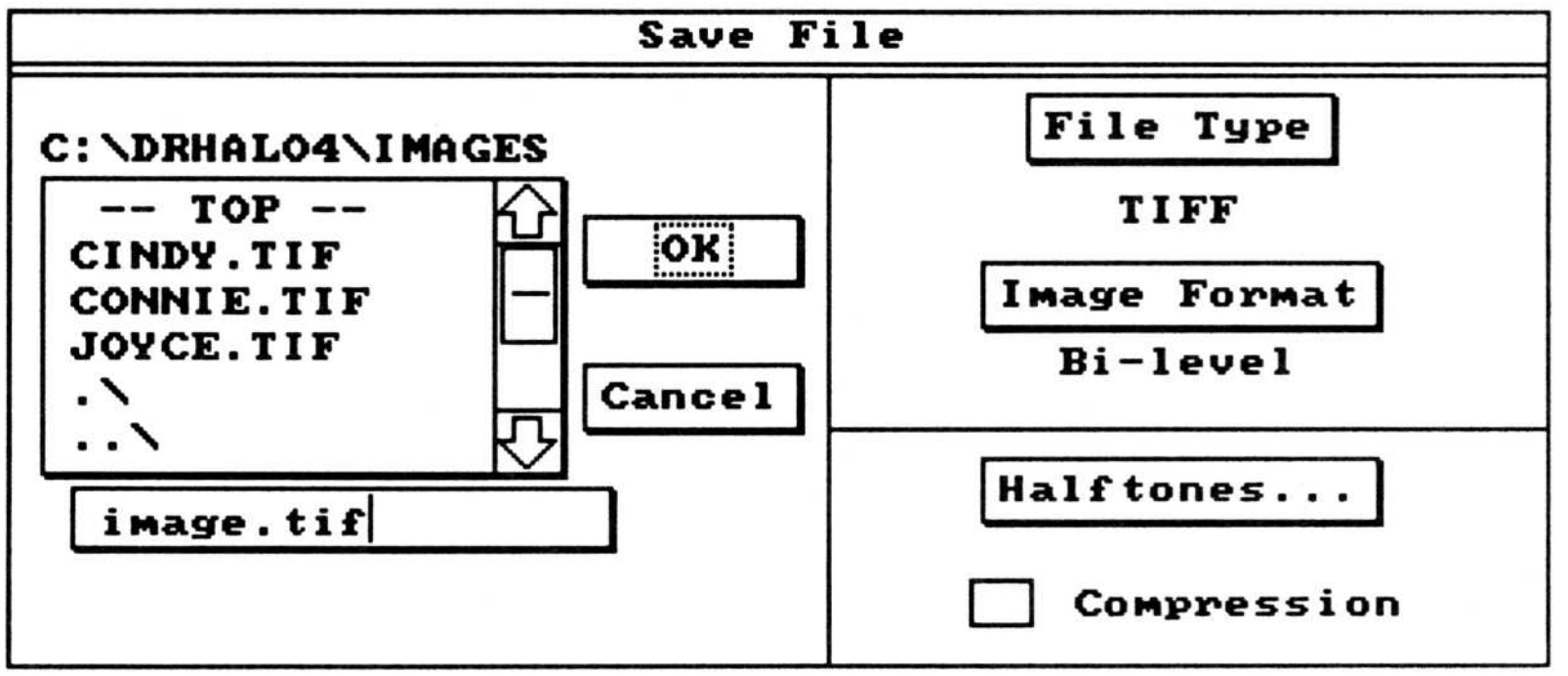


Figure 8-8. Save File Dialog Box

- Choose the **File Type** option in the **Save File** dialog box. A dialog box appears which displays files and file type choices. Available file types are TIFF, TGA, PCX, BMP, MSP, HALO CUT, and IMG.

- Choose the format in which you wish to save the image: Bi-level (1 bit), grayscale, true-color, 256-color palette, or 16-color palette. If you choose Bi-level, the image is saved according to the Halftone Options chosen (described below). Not all formats are applicable to all of the file types and types of workspaces. The file format pull down menu may be disabled if the chosen file type only supports a single format, and will otherwise list only the valid file formats for the current file type and workspace.

- Choose whether or not you wish compression to be on or off. Compression is applicable only to the TIFF, TGA and BMP formats. Note that some other applications cannot read compressed files.

- Type the desired filename under which you wish to save the image file.

- After typing the desired filename, select "OK" or press the <Enter> key. The image will be saved in the desired format in the chosen directory. Press <Ctrl-Break> to discontinue saving the image. The partially written file will be erased.

Converting Images

The primary opportunity for converting an image from one format to the other is during an image save (in addition to the Optimize Palette image conversion, which is discussed elsewhere in this Chapter). This section discusses what types of image formats are supported for each type of workspace, and what type of conversion **Viewer** will use to transform the image format. In every case, the image conversion is applied AFTER the current brightness, contrast and Gamma corrections.

Viewer supports the following image formats:

Bilevel	1-bit pixels, no look-up table or palette.
Grayscale	8-bit pixels, no look-up table or palette.
True Color	24-bit pixels (8 bits each for Red, Green, and Blue), no look-up table or palette.
256-Color Palette	8-bit pixels, M/Color® palette.
16-Color Palette	4-bit pixels, M/Color® palette.

Viewer supports writing the above image formats in the following image file formats:

TIFF	Bi-level, Grayscale, True Color and 256-color Palette, all with or without compression.
HALO CUT	Grayscale, 256-Color, and 16-Color Palette. Also supports writing Optimized Palette images and Grayscale. (Grayscale CUT files will have an associated linear gray scale palette file.)
PCX	Bi-level, Grayscale, True Color, 256-Color, and 16-Color Palette. (Gray scale PCX files will include a linear gray scale palette.)

TGA	Bi-level, Grayscale, True Color, and 256-Color Palette, all with or without compression.
IMG	Bi-level.
MSP	Bi-level.
BMP	Bi-level, True Color, 256-Color, and 16-Color Palette. Compression is supported on 256-Color and 16-Color palette files.

Bi-level Workspaces

When working in a bi-level workspace, Bi-level and Grayscale image formats are supported. Conversion to other image formats is possible by converting first to Grayscale, and then converting the Grayscale image to the desired format.

• Bi-level format	No conversion.
• Grayscale format	Expansion of one-bit pixels to pixels of either 0 or 255. Note: for expansion to other pixel indices, use the Optimize Palette process.

Grayscale Workspace

When working in a Grayscale workspace, all image formats are supported except for 16-color palette. To convert to a 16-color palette format, use the Optimize Palette process.

• Bi-level format	The image is halftoned to one-bit pixels using the current halftone process. The halftoning process may change the size (in pixels) of the image if the halftoning DPI does not equal the image DPI. Please refer to the section on halftoning later in this chapter.
• Grayscale format	No conversion.

- True Color — The current intensity of each pixel is used for each of the color components (Red, Green, and Blue) of the True Color pixel.
- 256-Color Palette — The current intensity of each pixel is used as the pixel index, and a linear ramp grayscale palette is written.

True Color

All image formats are supported in a true color workspace.

- Bi-level — An intensity is calculated for each pixel, which is then halftoned. This may change the size of the image (in pixels) if the halftoning DPI does not equal the image DPI. Please refer to the section on halftoning later in this chapter.
- Grayscale — An intensity is calculated for each pixel, which is used for the pixel index.
- True Color — No conversion.
- 256-Color Palette — A pixel index is calculated using the M/Color process. The standard M/Color® 256-color palette will be written.
- 16-Color Palette — A pixel index is calculated using the M/Color process. The standard M/Color® 16-color palette will be written.

Halftone Options

Allows you to set the halftoning options for use when printing or writing out files. Upon selection, a dialog box appears, resembling the one shown in Fig. 8-9 (the actual dialog box you see depends on your configuration). The dialog box gives you the following options: Resolution (DPI), Halftone style, and one of the following control windows: gray levels, error diffusion options, or threshold scroll bar.

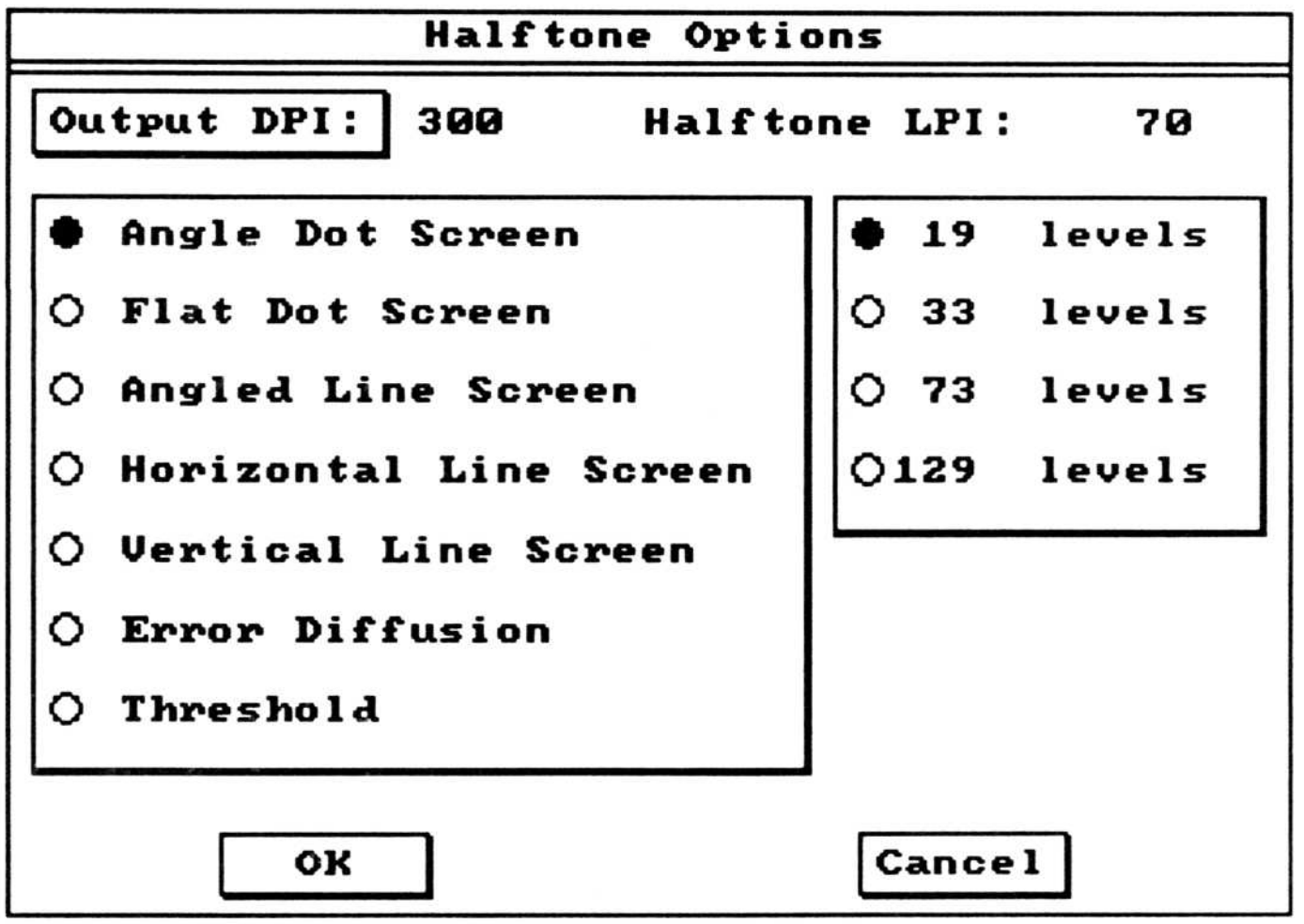


Figure 8-9. Halftone Options Dialog Box

Resolution

Click on the DPI button. A dialog box will be displayed that allows you to change the DPI to whatever value you wish. This is particularly useful if you would like to save (or print) the image at a spatial resolution that is greater than or less than the current value. If the halftoning DPI is larger than the image DPI, the image will be enlarged during the halftoning process. Conversely, if the halftoning DPI is smaller than the image DPI, the image will be reduced.

Halftone Style

Select from the following: Angle Dot Screen, Flat Dot Screen, Angled Line Screen, Horizontal Line Screen, Vertical Line Screen, Error Diffusion, or Threshold.

Gray Levels

Select from numbers of gray levels you wish to be simulated by the halftoning process. This control will not be displayed if the current halftone style is Error Diffusion or Threshold.

Error Diffusion Options

When Error Diffusion halftoning is selected, the Gray Levels control window is replaced by an Error Diffusion optins window. Error Diffusion options include 4-weight, 12-weight, Fuzzy, and Random. The options control the exact type of Error Diffusion halftoning used, which will make subtle diffeerences in the appearance of the image.

Thresholding Level

When thresholding is selected, the Gray Levels control window is replaced by a scroll bar which will allow control over the image threshold in the converted image. All pixels with an intensity greater than the threshold value will be represented by white pixels, and all pixels with an intensity less than or equal to the threshold value will be black.

Printing An Image

The Print Option of the file menu sends contents of the workspace to the printer, using the current halftoning options (Note that Halftone Options are essentially the same for Printing and Saving. The Halftone options dialog box may allow selection of printer halftoning, if supported by the currently selected printer. Refer to the description of Halftone Options for Saving Files, above.)

Depending on the printer you are using, upon selection, a dialog box appears resembling the one shown below:

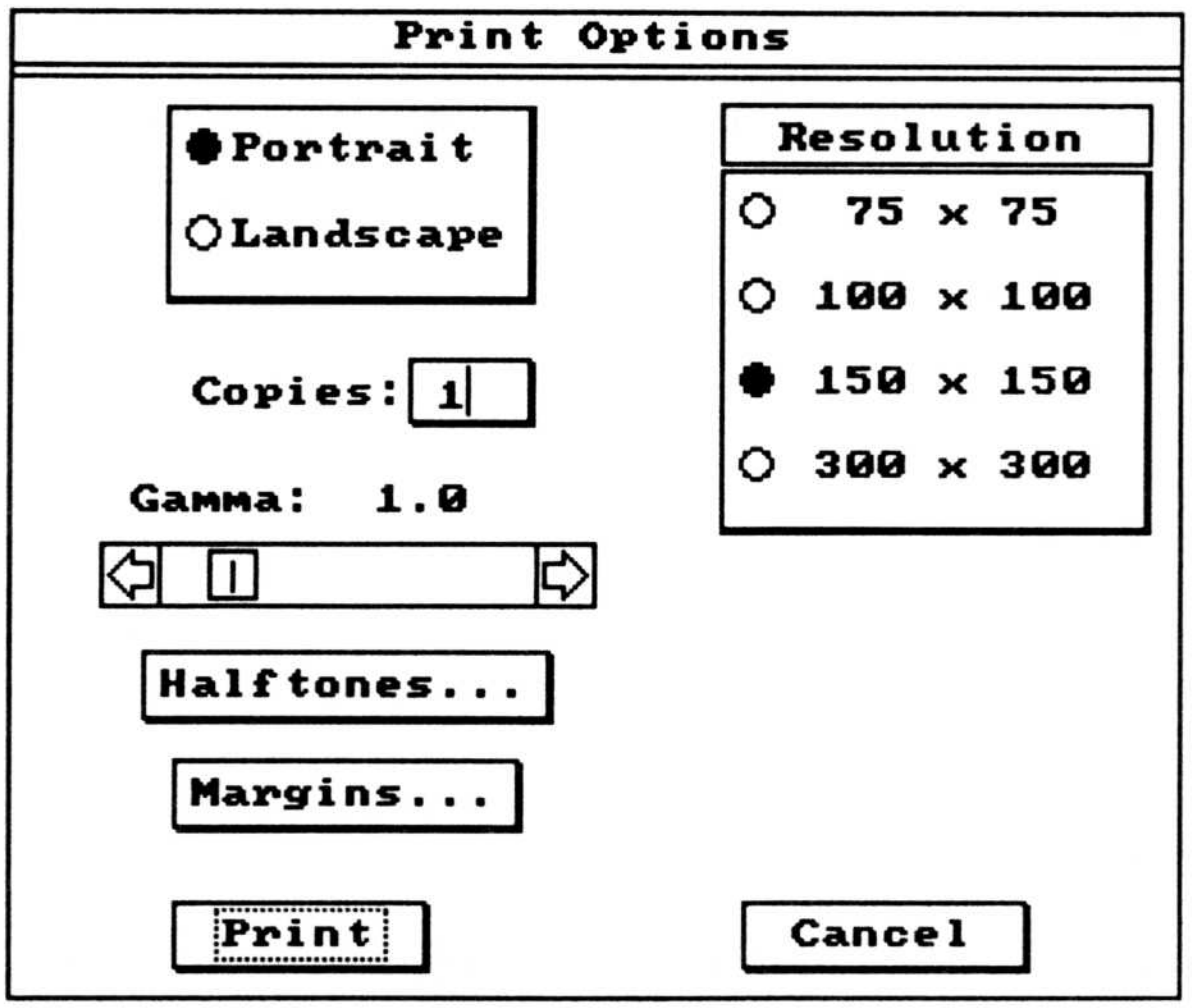


Figure 8-10. Print Options Dialog Box

You have some or all of the following options:

Portrait or Landscape

Resolution in DPI

Number of Copies

Gamma

In addition you can select buttons for **Halftones** and **Margins.** Selecting **Halftones** is the same as in File Save, described above. If you select **Margins**, the dialog box shown in Fig. 8-11 appears:

This dialog box lets you specify where on the page you want the image printed, or if you want the image scaled to fit within the page.

The options in the Margins dialog box include:

Center — Clicking on this button positions the document in the center of the page.

Actual Size — Clicking on this button returns your document to its actual size if you have changed the size in this dialog box.

Fit to Page Clicking on this button either scales your document to the largest size possible while still maintaining the aspect ratio, or if the image is larger than the page dimensions, it makes the image small enough to fit within the page while maintaining the aspect ratio.

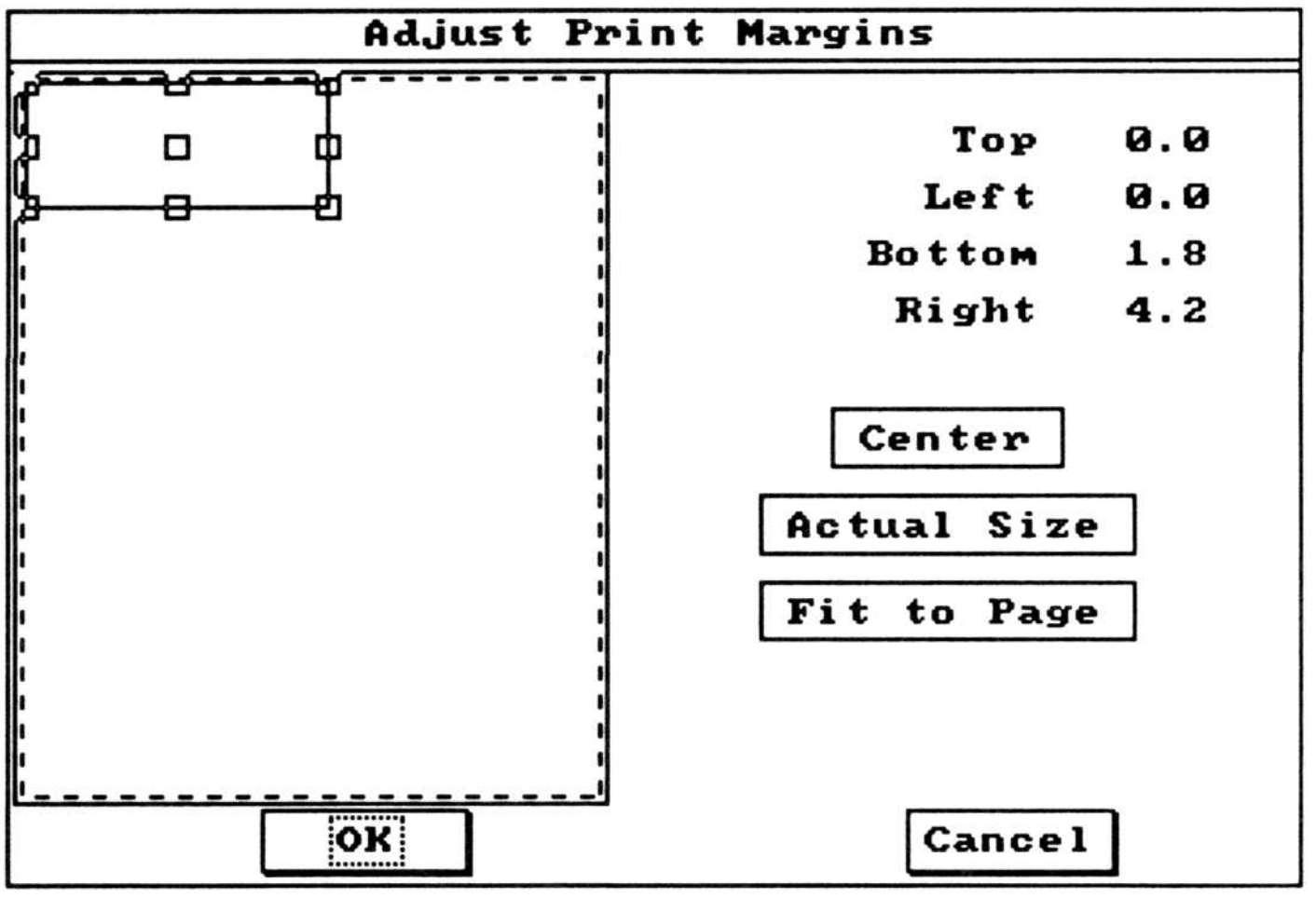


Figure 8-11. Printer Margins Dialog Box

The left side of the dialog box represents the page and your document positioned in the upper left corner. You can also drag the handles in the center, the corners, or the middle of each of the sides on the document to position the image (using the center handle) and scale the image (using the handles around the edge of the image). If you drag a corner handle, you will be able to maintain the image's aspect ratio while you enlarge or reduce its size.

- After selecting the the desired printing options, select OK or press the <Enter> key.

Exiting the Viewer

The Quit Option of the File Menu exits the **Viewer**

- Upon selection, you will be prompted whether or not you want to quit. Select "Yes" or "No" as desired.

The COLOR Menu

Options in the COLOR menu let you create an optimized palette version of an image, control the brightness and contrast, and control the Gamma map effects in an image.

Optimizing the Palette

The Optimize Palette option of the Color Menu allows selection of the starting and ending pixel indexes to be used for an optimized palette version of the image in the current workspace. When executed, this creates a workspace the size of the current frame (if enabled) or image, and generates a best-fit optimized palette version of the image within the new workspace.

For bi-level workspaces, this process is essentially an expansion of the workspace from one to eight bits, where all black pixels take on the starting index, and all white pixels take on the ending index. Except where creating special effects, you will want to leave the starting index at 0, and set the ending index to the maximum color index for your display adapter (e.g., for a 16-color EGA/VGA device, set the ending index to 15).

The proper usage of the Optimize Palette function can allow combining multiple true-color and Dr. Halo Gradient images, or generation of 16-color optimized palette images (See Chapter 12, Tips and Tricks for suggestions on combining images).

When you choose Optimize Palette, a dialog box appears, as shown in Figure 8-12 on the following page.

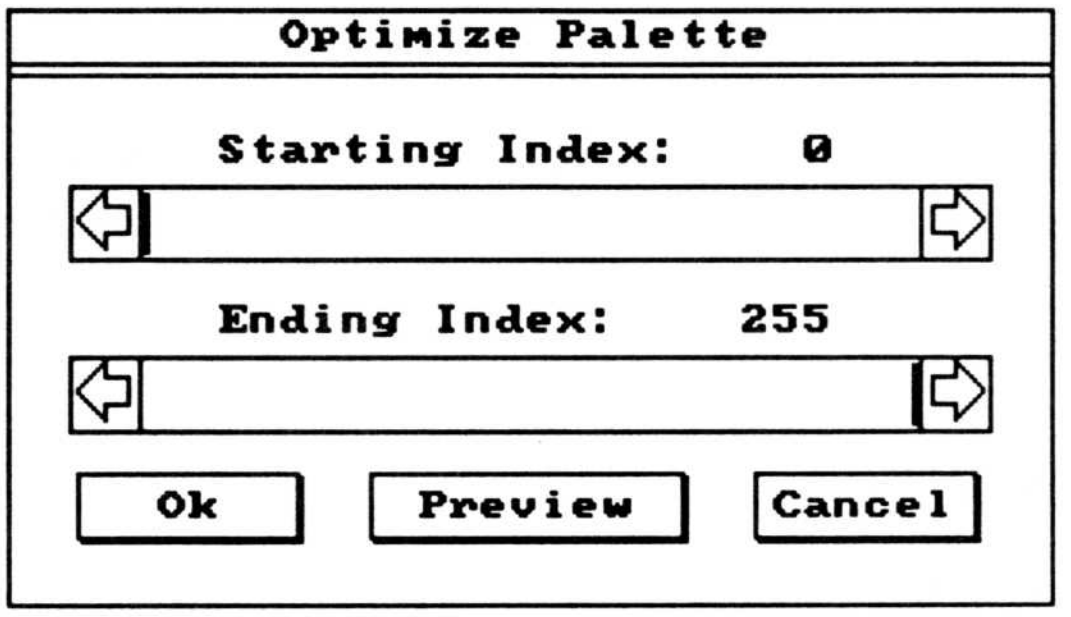


Figure 8-12. The Optimize Palette Dialog Box

The Dialog Box has the following features:

- **The starting and ending scroll bars:** These allow you to determine which indexes of the palette should be used for the optimized palette.

- **OK Button**: Selecting this button begins generation of the optimized palette image.

- **Preview Button:** Select the Preview button to display a preview of the current optimization. The Preview Button will be disabled for bi-level workspaces.

- **Cancel Button:** Select Cancel to quit the Optimize Palette function without generating the new image.

Note: Optimized Palette workspaces can only be saved in the HALO CUT format. This format (in conjunction with Dr. Halo IV) allows the most flexible management of the palette resource.

It is simply not practical to attempt to generate an optimized palette for an image given only a few indexes. Viewer has a lower limit of eight indexes for a gray scale workspace, and 16 indexes for a true color workspace. Although many images can be optimized into a 16-color palette for display on a 16-color VGA display adapter, you will find that many cannot.

Generating an optimized palette image may take a considerable amount of time, depending on the following factors: the speed of your computer, the spatial resolution of the image (in pixels), and whether either image workspace requires disk storage.

Resetting Brightness & Contrast

The Reset B&C option of the Color Menu resets the brightness and contrast in the workspace.

- Upon selection, this option returns the B&C (brightness and contrast) menu settings to their default state.

Note: This option is useful if you did not achieve the desired effect when you changed the setting.

Resetting Gamma

The Reset Gamma option of the Color Menu resets the Gamma curve map in the workspace.

- Upon selection, this option returns the Gamma curve map to its default state. In other words, if Gamma curve mapping has been changed, this option will return the map to linear.

Note: This option is useful if you did not achieve the desired effect when you changed the setting.

The OPTIONS Menu

Options in the OPTIONS menu let you configure your printer and determine image memory usage.

Selecting a Printer

The Select Printer option of the Options Menu allows selection of currently connected printer and attributes.

Selecting a Printer

- Use the scroll bar to bring the desired printer into view in the printer list.

- Select the desired printer from the printer list.

Changing Printer Options

Note that the options shown may vary, depending on your selected printer and the printer drivers installed on your system.

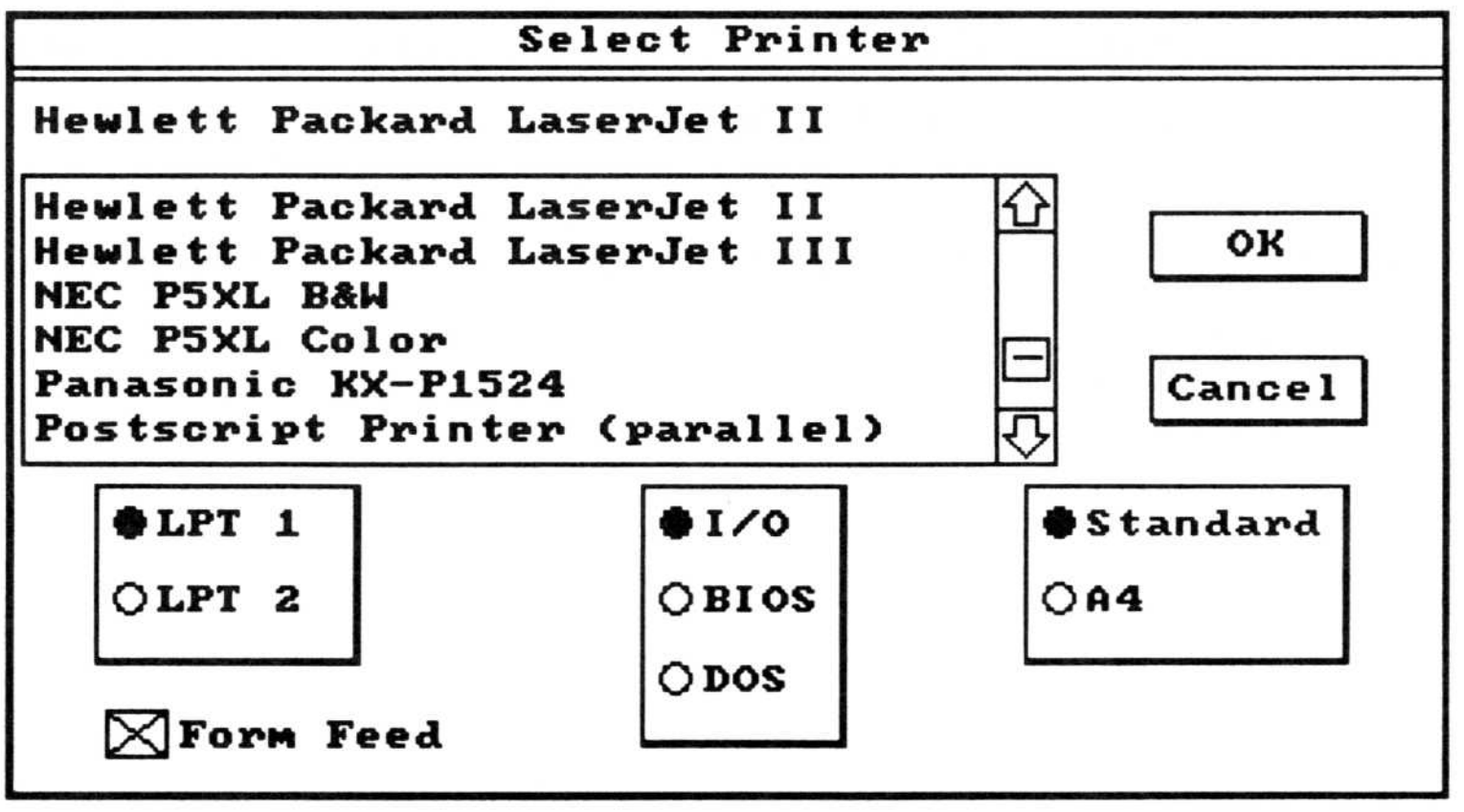


Figure 8-13. Select Printer Options Menu

- Access the Select Printer dialog box (shown in Figure 8-13, above).

- Select the desired Printer Port, the desired paper size, whether to use form feed, and whether to print through DOS, BIOS, or direct I/O. (Note: if you have troubles printing, experiment with these three, using what works best on your particular configuration.)

Displaying Memory Information

The Available Image Memory option of the Options menu displays the available memory (base, extended, and expanded) on the disk.

Upon selection, a dialog box appears displaying the amount of memory and disk space currently being used by the program, as well as the total available.

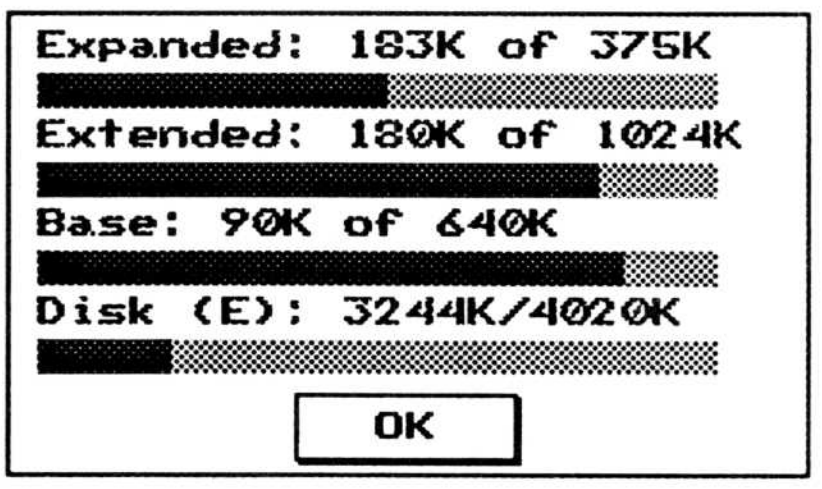


Figure 8-14. Available Image Memory

Note that the available memory listed for expanded, extended, and disk is only reflective of the resources available for images, and not total memory available. This is to allow for the memory needed for the program itself. However, the amount listed for Base reflects the amount of total system memory.

The Viewer always reserves sufficient internal memory to allow loading the maximum number of workspaces (ten). Additionally, the entire workspace must fit within a contiguous chunk of one type of available image memory (for instance EMS or XMS). If either of these limits is reached, Viewer will use a swap file to store the workspace.

The VIEW Menu

Options in the VIEW menu let you hide or show the various command windows.

Show/Hide Image Controls Window

This option from the View Menu displays or hides the Image Controls Window

To hide the Image Controls Window panel, select Hide Image Controls. To show the Image Controls Window panel, select Show Image Controls.

Show/Hide Gamma Curve

This option from the View Menu displays or hides the Gamma Curve display window

To show the Gamma Curve display, select Show Gamma. To hide the Gamma Curve display, select Hide Gamma.

9. The BFEDITR Utility

The Bit Font Editor Utility (BFEDITR) allows you to edit the Dr. Halo IV bit fonts, or even create totally new fonts that you can use in Dr. Halo IV.

BFEDITR is a dot text font editor that allows you to edit the bits of individual text characters, as well as to easily make identical modifications to many characters.

Note that the Dr. Halo IV fonts are 100% compatible with fonts from Media Cybernetics' HALO Professional graphics programming tools.

If you are using a display with a resolution of 320 x 200, some of the messages and dialog boxes may differ from the examples shown in this chapter, due to space limitations on such a display.

Starting BFEDITR

Type the following at the DOS prompt to start the utility:

bfeditr↵

The **BFEDITR** screen will appear as shown in the example on the following page. (Note: The Character Editing and Selection Windows shown in the example will not appear until a font is loaded or created using the File menu.)

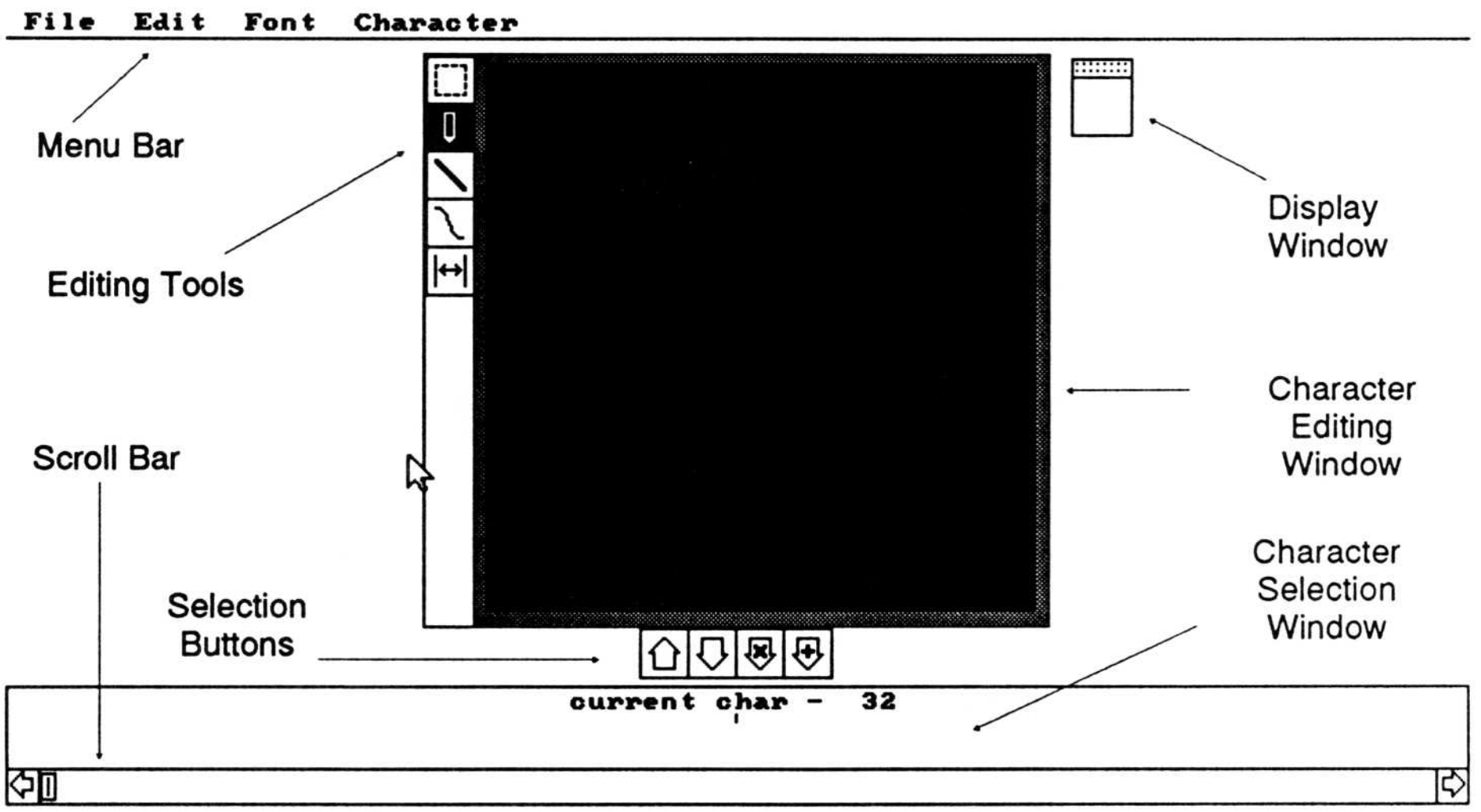


Figure 9-1. Example BFEDITR Screen

The Menu Bar

The Menu Bar contains the titles of pull-down menus. To select menus, position the cursor over the desired menu name and press the left mouse button. To select items from the menus, position the cursor over the desired option and press the left mouse button.

The File Menu

The **File** menu is used for file I/O management and to exit **BFEDITR.**

The **File** menu contains the following options:

About	Displays a window with the current version and copyright notice.
New	Allows you to set font attributes. An empty font with the selected attributes is created.
Open	Allows you to select which font file to load.
Save	Saves a font file under the filename selected with **Open**.

Save As Uses standard file selection to save a font file. . Use **Save As** to save a font under a different name or to save a font file created with **New**.

Quit Exits the **BFEDITR** utility.

Note: If **New, Open,** or **Quit** is selected and a font currently exists with unsaved changes, you will receive a prompt asking if you want to discard the changes. Responding 'Yes' will continue with the requested action; responding 'No' will abort the requested action.

Note: The default search path and file extension for the file box can be changed in two ways: (1) a path and/or new extension can be specified in the BFEDITR.CNF configuration file using the -F option (see Appendix 2), or (2) a new file extension can be specified in the file box by entering ***.ext*** in the text entry window, where *.ext* is the new extension desired.

The Edit Menu

The **Edit** menu is used to edit areas within a character. All of the **Edit** menu options use the Edit Area, which is indicated in the Character Editing Window by a blue box. Select the Edit Area with the Area tool. (See the description of the Character Editing window later in this chapter.) Note: the **Edit** menu options are valid only if a font has been loaded or created. The current tool must be Area.

The **Edit** menu contains the following options:

Copy Copies the current Edit Area to the Copy buffer.

Cut Copies the current Edit Area to the Cut buffer and then erases the contents of the current Edit Area.

Paste Copies the contents of the Cut or Copy buffer to the position of the upper left corner of the current Edit Area.

Clear Clears the contents of the current Edit Area.

The Font Menu

The **Font** menu is used for font management. Note: The **Font** menu options are valid only if a font has been loaded or created.

The **Font** menu contains the following options:

Show Example Opens a large window with sample text in the currently loaded font. To remove the window, select the OK button.

Show Attr Opens moving window with attributes of the currently loaded font. Menu selection changes to **Hide Attr** for removal of the window.

Change Attr Allows the attributes of the current font to be modified. These attributes include: ID, height, width, minimum ASCII, and maximum ASCII.

Make Proportional Allows a non-proportional font to be adjusted automatically for use as a proportional font. You can set attributes such as font ID and inter-character spacing.

The Character Menu

The **Character** menu's Shear option allows you to perform shifting and shearing (tilting) on a character. (See the detailed discussion of Character Shifting and Shearing later in this chapter.) Note: The **Character** menu option is valid only if a font has been loaded or created.

The **Character** menu contains the following option:

Shear	Uses a dialog box to allow you to shift and shear the current character. The current character is updated as the shifting/shearing is changed.

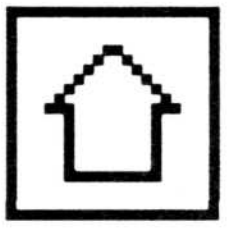
The Character Selection Window

The Character Selection Window appears after loading or creating a font file. The window runs along the bottom edge of the screen. A portion of the current font is shown in order to aid in selecting the character to edit.

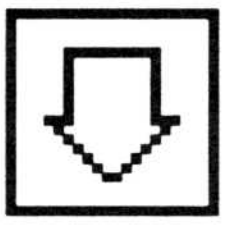
The **Current Char** indicator points to the character in the font that can be loaded into the Character Editing Window. A scroll bar at the bottom of the window allows positioning of the current character within the font. The current character also can be selected by clicking on one of the characters in the display area. The current character is loaded into the Character Editing Window by clicking on the Up Arrow icon. The edited character can be returned to the font by clicking on the Down arrow icon.

Selection Buttons

Use the set of four arrow buttons above the Character Selection Window to load characters into and out of the font for editing. Move the cursor over the desired arrow icon and press the left mouse button.



The "up" arrow loads the character into the Character Editing window for editing.



The hollow "down" arrow loads the character image in the Character Editing Window into the current character of the font.

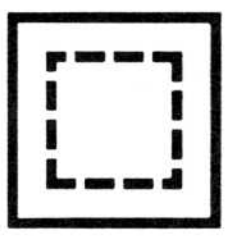
The "x down" arrow loads the character into the current character of the font by ANDing the character image with the one already present in the font.

The "+ down" arrow is similar to the "x down" arrow, but the character image is ORed with the character already present in the font.

The Character Editing Window

Editing within the Character Editing Window is performed with five tools: Area, Point Draw, Line Draw, Curve Line Draw, and Char Width Adjust. To activate a tool, move the cursor over the icon of the desired tool and press the left mouse button.

The Area Tool

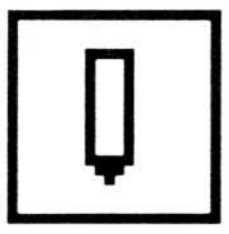


This tool allows you to define an Edit Area within a character that can be operated on by using the other **Edit** menu suboptions.

Upon selection, a blue Area box appears in the Character Editing Window. You can rubberband the box by moving the cursor near the upper-left or lower-right corner of the box, holding down the left mouse button, and dragging the selected corner. The corner to be dragged is the one closest to the cursor when the left mouse button is pressed.

Note: Currently, there is no way to move the entire Area box as a unit; you must move one corner and then the other to change the box's position.

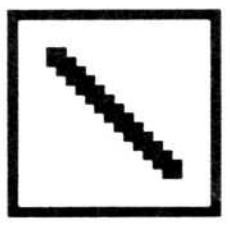
The Point Draw Tool



This tool allows you to alter the individual bits of a character.

Upon selection, move the cursor to the bit you wish to alter, then press the left button. This action is a toggle: selecting an "off" bit turns it "on," and vice-versa. You also can hold down the left button and drag the cursor to change multiple bits.

The Line Draw Tool

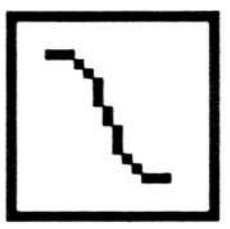


This tool allows you to draw lines within the character.

Upon selection, a blue line appears in the Character Editing Window. You can rubberband the line by moving the cursor near one of the endpoints, holding down the left mouse button, and dragging the selected endpoint. The endpoint to be dragged is the one closest to the cursor when the mouse button is pressed. Press the right mouse button to draw the line permanently.

Note: Currently, there is no way to move the entire line; you must move one endpoint and then the other to reposition the line.

The Curved Line Draw Tool

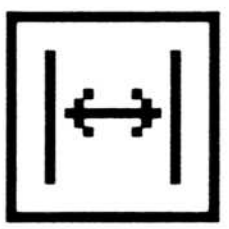


This tool allows you to draw curved lines in the character.

Upon selection, a four point poly curve appears in the Character Editing Window. You can move each of the control points as described above in the Line Draw tool.

Press the right mouse button to draw the line permanently.

The Character Width Adjust Tool



This tool allows you to change the image width and/or update width of the current character. This tool can be used only if the currently loaded font is proportional.

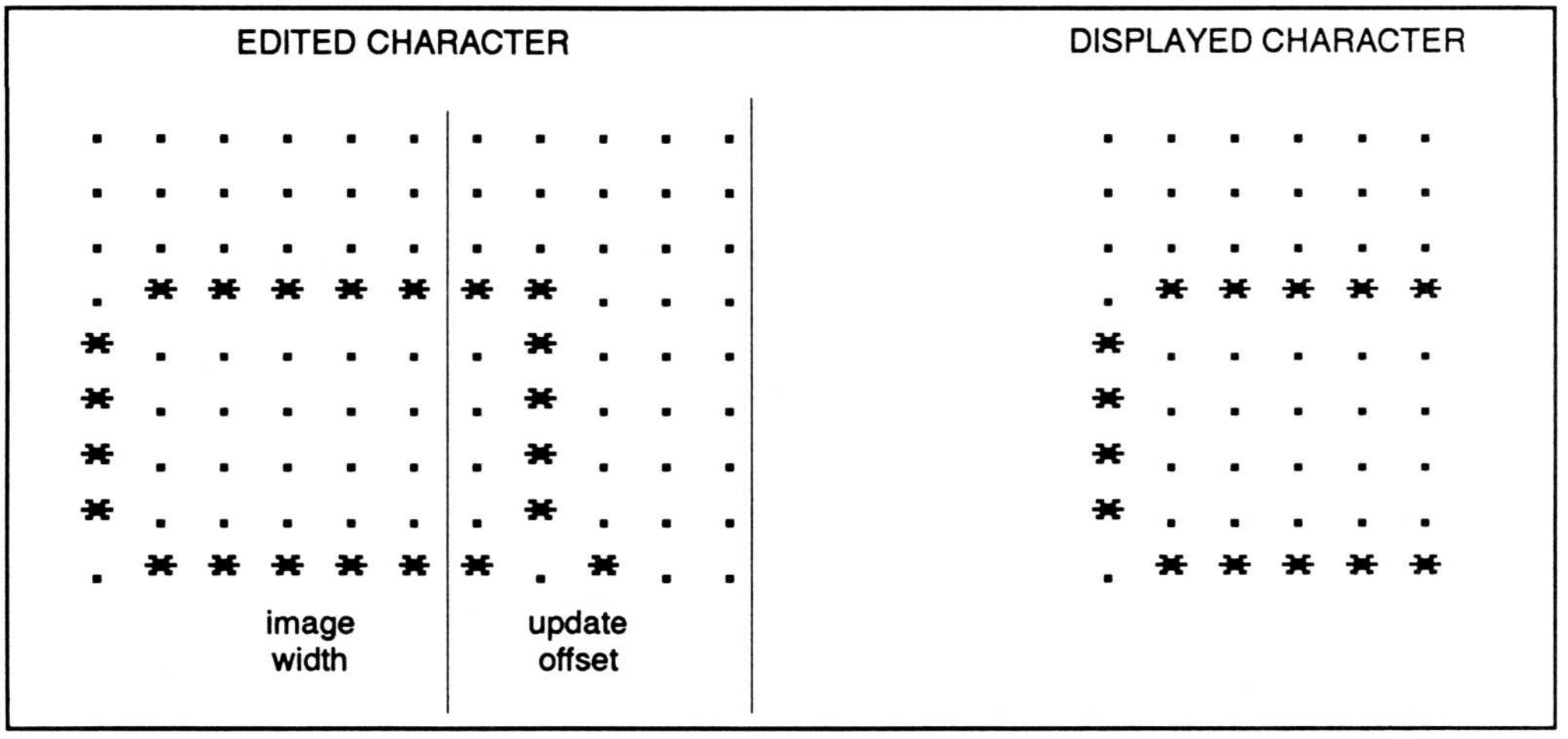
Upon selection, two solid lines appear in the Character Editing Window. The blue line represents the **image width** (the width of the character that is drawn). The distance between the two lines is the **update offset** (amount of intercharacter space). The green line represents the **update width** (the image width of the character plus the amount of intercharacter space.) The update width is the amount that the text cursor will be moved when the character is displayed by Dr. Halo IV.

You can reposition either line by moving the cursor near the line, holding down the left mouse button, and dragging the selected line to the new

location. The line to be dragged is the one closest to the cursor when the left mouse button is pressed.

Important Note: Changing the image width using this tool does *not* change the size of the character. Making the image width smaller than the current character truncates the amount of the character that is displayed, but none of the bits comprising the character are deleted (see Figure 9-2 below).

Figure 9-2. Image Width Narrower Than Character
(= character fore color, . = character back color)*



In such a case, the displayed bits are shown as white and the undisplayed bits are shown as shaded in the Character Editing Window. You can edit the undisplayed bits just as you would the displayed bits by using any of the editing tools.

Making the image width larger than the current character gives you more blank space to make alterations to the character.

The Display Window

Along with the Character Editing Window, a Display Window is present that displays the current editing character in actual size. The Display Window updates every time the Character Editing Window updates so you can see the actual appearance of changes you have made before

loading the character back into the font. The Display Window can be moved anywhere on the screen by positioning the cursor over the bar at the top of the window, depressing the left mouse button, dragging the window to the desired location, and releasing the button.

Character Shifting and Shearing

You can shift or shear (tilt) a character by selecting the **Shear** option from the **Character** menu.

Shifting

Use the scroll bar to select the amount and direction (up, down, left, or right) of movement. The image in the Character Editing and Display Windows is updated as the shifting is done.

Shearing

Select shearing by turning "on" the check box marked **Shear**. Shearing only can be done in the left and right directions. When active, the top line of the character is shifted in the indicated direction by the amount selected with the scroll bar. All other lines of the character are shifted by an amount proportional to the top line shift.

OK/Cancel/Update

Select the **Update** button to save the current shift/shear of the character and continue shifting/shearing. Select the **OK** button to save the current shift/shear of the character and exit the shifting/shearing option. Press **Cancel** to exit the shifting/shearing option without any changes.

Recording/Playing Back

This function is used to save a series of shifting and shearing operations for application to multiple characters.

Check the **Record** box to turn recording on and off. When the Record box is checked "on," the contents of the record buffer are erased. Then, every time the Update button is pressed, the shift/shear operation is saved. To play back the recording, select the **Play** button.

Modifying Font Attributes

You can change the attributes of a font (ID, height, width, minimum and maximum character) by selecting **Change Attributes** from the **Font** menu.

Font ID

You can change the font ID to any legal value. The ID of a proportional font must remain in the range 700 through 799. The ID of a non-proportional font must remain in the range 000-099 or 300-399.

Note: You can convert a non-proportional font to a proportional font by using the **Make Proportional** option under the **Font** menu.

Height & Width

You can change the height of any character to any value. The only limit on the height and width of a character is that no one character can occupy more than 255 bytes.

Minimum & Maximum ASCII

You can set the first and last valid character in the font to any value between 0 and 255. The minimum value must be less than or equal to the maximum value.

Making a Font Proportional

You can make a non-proportional font proportional by selecting **Make Proportional** from the **Font** menu. The editor will scan each character automatically, determine its minimum width, and adjust the font accordingly.

Font ID

Use the scroll bar to select the new font ID for the font being converted. The font ID should be in the range from 700 to 799.

Image Offset

The editor automatically determines the width of each character in the non-proportional or proportional font. This width is determined by the actual data in each character, and is defined as the minimum number of horizontal dots needed to show the character data.

If desired, use the scroll bar to specify an additional amount (the image offset) to add to the minimum width determined by the editor. For most applications, image offset should be set to zero. (See Figure 8-3.)

Update Offset

Use the scroll bar to specify the amount of intercharacter space to add to the minimum width of the character to form that character's update width. If no update offset is specified, **BFEDITR** will use a default value of 2 more than the minimum width of each character. (See Figure 9-3.)

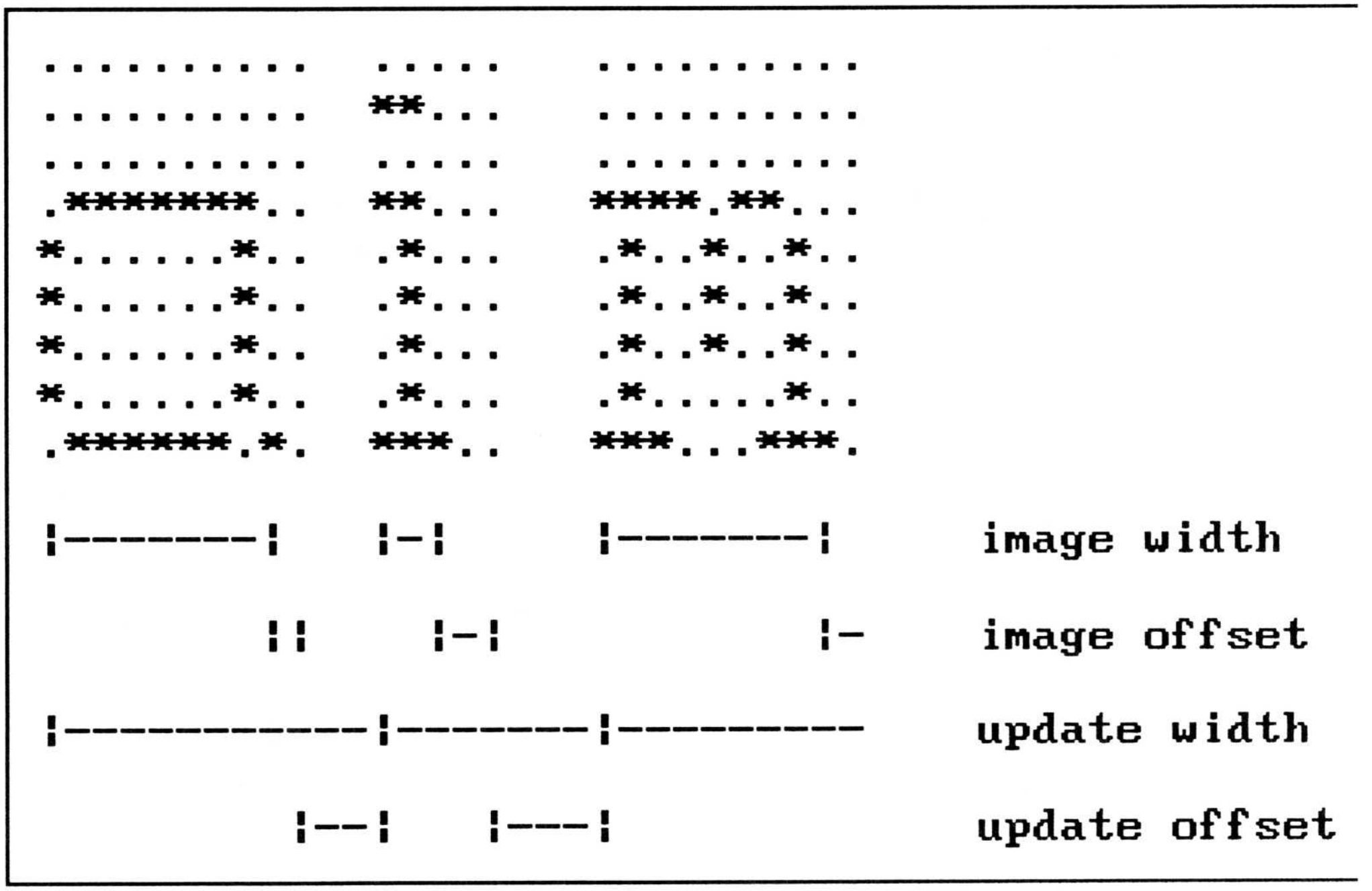


Figure 9-3. Character parameters for the word "aim"
(For a non-proportional font being converted to proportional)
(= character fore color, . = character back color)*

The Presents Utility

Presents gives you the ability to organize images created with Dr. Halo IV into a slide-show-style presentation or into a series of images to be queued for batch printing.

Running Presents

To run **Presents**, first make sure you are in the Dr. Halo IV directory. If you are not, type **cd\drhalo4** (assuming that during the Setup process, you put Dr. Halo IV in the default directory).

Then, type the following at the DOS command line:

presents↵

The **Presents** main menu will appear. To select an option from the menu, move the cursor to the desired option and press <Enter>. (You can also select an option by typing the initial letter of the option and pressing return). To return to the **Presents** main menu at any time, press <Esc>.

Editing A Presentation

You can edit a new presentation or a presentation created previously by the Presents Utility.

Note that this version of **Presents** will not edit presentations created previously by versions of **Presents** that accompanied earlier versions of Dr. Halo.

- To edit a new presentation, select CREATE PRESENTATION from the main menu.
- To edit a previously created presentation, select LOAD PRESENTATION from the main menu. When prompted, type the desired presentation filename, including pathname if the presentation lives in another directory. (Press <F1> for a directory of Presentation files).

Important: If you select the EDIT PRESENTATION option from the main menu, and no presentation is currently loaded, **Presents** *will automatically select LOAD PRESENTATION.*

In either case, the **Presents** editing window will appear in the Regular Edit mode. The top part of the window displays the slide descriptions while the bottom part of the window is the menu of available options.

Note: you can press <F9> at any time (except while printing) to access the HELP file.

Also, you can edit a presentation file in the Regular Edit mode, or toggle the <F10> key to access the Quick Edit mode.

The Regular Edit Mode

Each line of the slide descriptions contains seven "fields" or spaces for information about the slide: the image/palette filename, the clear screen flag, the fade in time, the delay interval, the fade out time, and the X- and Y- coordinates of the desired screen position.

Entering the Names

Type the filename and press <Enter>. Filenames can be the names of any valid CUT or PCX image file or a PAL palette file (created by Dr. Halo IV). **Presents** will assume that a filename without an extension (i.e. CUT or PCX) is a PCX file. The rest of the line is filled with the default values for the other fields.

When loading a CUT file, **Presents** looks for a PAL file with the same filename. If one is not found, the image is loaded with the currently current palette.

When loading a PCX file, **Presents** looks for a palette within the PCX file. (There are many different types of PCX files; some include palettes and some do not.) If **Presents** does not find a palette within the PCX file, it loads the file with the currently present palette.

When loading a PAL file, **Presents** loads the new palette, leaving the current image on the screen.

Note: the first file loaded should either be a PAL file or an image containing a palette. The initial palette for a presentation is all black (for fading).

If you wish to leave the default values, either press the Down Arrow key to move to the next line, or press <Enter> until you reach the next line.

(To change those values from the default, press <Enter> or use the arrow keys to move to the desired field and type the new value. The only way to accept a new filename or value is to use the <Enter> key.)

Setting the Clear Option

The CLEAR field indicates whether the display should be cleared before loading the image. Enter either "Y" for *yes* or "N" for *no*.

Setting a Delay

The WAIT field is the delay interval. KBD is the default value; any slide with this delay interval will display until you press a key. Enter a number from 0 to 999 to set the delay interval in seconds.

Creating a Fade

When the palette is loaded, an effect called "palette fade" can be used. Palette fade changes the palette from its current values to the new values in a series of steps, creating a smooth transition or fade.

The IN field sets the amount of time for the new palette to be faded in. A value of -1 indicates that the new palette should not be loaded. A value of 0 indicates that the new palette should be loaded immediately. A value greater than 0 indicates the amount of time (in tenths of seconds) that the fade in should take.

Fade in should only be used on images containing palettes.

See Chapter 12 for some interesting effects in using the palette fade.

Fading to Black

The OUT field sets the amount of time for the palette to be faded to black after the image has been shown. A value of 0 indicates that the palette should not be faded out. A value greater than 0 indicates the amount of time (in tenths of seconds) that the fade out should take.

Note: the next image loaded after a fade out should contain a palette.

Positioning an Image File

You can type the X- and Y- coordinates of the upper left corner of the desired area in which you wish the image to be displayed. (For example, if the X- and Y- coordinates you choose are 100, 100, then the upper left corner of your file will appear at 100,100.) If the image is placed so that any part of it lies off the screen, it is clipped at the screen edges. Values of -1 for either offset will center the images on the screen for the appropriate coordinate axis. *Note: If you are using a full page CUT or PCX file image as a slide,* **Presents** *will only display the portion of the page that fits on the display screen.*

Editing Slide Information in a List

To edit a previously entered slide, move the cursor to the line containing the slide and use the TAB or SHIFT TAB to move to the field you wish to change.

Inserting or Deleting Slides

To insert a slide in the list, move the cursor to the desired location and press <F7>. The list opens at that location, and you can type the desired slide information.

To delete a slide, move the cursor to the desired location and press <F8>. The slide will be deleted and the remainder of the presentation will move to fill the space.

Copying or Moving Blocks of Slides

To copy or move a block of slides, move to the beginning of the block and press <F3> (Start Block). Then move to the end of the block and press <F4> (End Block). Move to the new location and press <F5> to make a copy of that block of slides there. Press <F6> to move the block there, deleting it from its original position.

Displaying Slides in the Regular Edit Mode

While in the Regular Edit mode you can display any currently listed slide or the entire list of slides in the presentation. This allows you to cycle through the presentation without having to exit the EDIT mode. An advantage of this method is that if there is a problem with any of the slides in the presentation, the display will pause and return an error message. (If there is a problem with a slide and you are displaying the presentation through the main menu DISPLAY option, **Presents** will simply skip over that slide.)

To display one slide, move the cursor to the desired slide and press <F1>. Press any key to return to the editing window.

To display the entire list of slides press <Shift-F1>. The presentation will cycle through with each slide lasting for the designated time interval.

Again, note that if there is a problem with any of the slides in the presentation, the display will pause and give an error message.

Printing Slides in the Regular Edit Mode

To print one slide, move the cursor to the desired slide and press <F2>.

To print all the slides in the presentation, press <Shift-F2>

If there is a problem with a slide, the print will stop and **Presents** will return an error message.

The Delay intervals will be ignored during printing.

Remember: Press <F9> at any time (except while printing) to access the HELP file. Press <F10> to access the Quick Edit mode.

Remember: To abort a printing session press <Ctrl-Break>.

The Quick Edit Mode

The main advantage of the Quick Edit mode is that you can enter image files as slides in your presentation directly from the Dr. Halo IV directory without having to type the filenames. In addition, you can log different directories to search for desired image files.

Press <F10> to move from the Regular Edit mode to the Quick Edit mode. The area for slide descriptions shrinks, and a log of the image files available in the Dr. Halo IV directory appears.

To enter one of the listed image files as a slide, move the cursor to that file and press either K or T. If you press K, the file will be added to the list of slides and given a KBD (keyboard) interval. If you press T, you will be prompted for the desired time interval before the file is added to the list of slides.

If you press <Enter> without selecting a time when prompted for time, the last Delay interval chosen will automatically be entered.

Logging a New Directory

To log a new directory or drive to search for an image file, press L. You will be prompted for the name of the directory. Type the path name of the directory or the letter of the new drive followed by a colon.

Specifying Pathnames

If you want the pathname to be part of the image filename, press P before pressing K or T. Press P again before entering a filename for which you don't want a pathname attached.

Note that if you are creating a presentation consisting of files from different directories, you MUST specify pathnames so that **Presents** *knows where to search for the file when you display the presentation.*

Also, if you are using image files from a disk in a different drive, you need to have that disk loaded in that drive each time you access the presentation.

Displaying or Printing a Slide

As in the Regular Edit Mode, you can display or print a slide by moving the cursor to the desired slide and pressing <F1> or <F2>, respectively. Note, however that in Quick Edit mode, you cannot display or print the entire list of slides.

Remember: Press <F9> at any time (except while printing) to access the HELP file. Press <F10> to return to the Regular Edit mode.

Nesting Presentations

Although there are only 80 positions for slides in any one presentation, you can create a longer presentations by "nesting."

To do so, just type the name of a second presentation file (suffixed PRE) as a slide name. When **Presents** reaches that position (either displaying or printing), that entire presentation file will be called.

Nesting may only go to one level. In other, words, you may not nest a Presents file within another nested presents file.

Saving A Presentation

To save the currently loaded presentation, return to the main menu (by pressing <Esc>) and select SAVE PRESENTATION. You will be prompted for a name for your presentation. Type the name and press <Enter>. The currently loaded presentation will be saved with the designated name and the extension .PRE.

Displaying A Presentation

To display the currently loaded presentation, return to the main menu (by pressing <Esc>) and select DISPLAY PRESENTATION. You can then choose whether you want the presentation to loop continuously or run once and stop.

The presentation will begin immediately and each slide will be displayed for the designated time interval. (If the time interval is KBD (keyboard), **Presents** will wait for you to press a key before moving to the next slide.

Key Commands Used During Display

At any time during a presentation, pressing the following keys will have the following affects on your presentation:

<Esc>	***Aborts Presentation***
<Home>	***Returns to beginning of file***
<UP Arrow>	***Displays previous slide***
<DOWN Arrow>	***Advances to next slide***
<Spacebar>	***Pauses the presentation until another key is pressed***

Presents responds to key presses during the delay interval. It will not respond while the palette is being faded in or out.

Displaying From The Command Line

You can display a presentation without the necessity of running the **Presents** program and selecting the DISPLAY option.

First, make sure you are in the Dr. Halo IV directory. Then, type

Presents filename↵

where **filename** is the name of your desired presentation file. (**Presents** will automatically append the suffix PRE.) The chosen presentation will be displayed once.

If you want to display a presentation continuously from the command line, type the same command, but enclose the filename in parentheses:

Presents (filename)↵

Printing A Presentation

To print the currently loaded presentation, return to the main menu (by pressing <Esc>) and select PRINT PRESENTATION. The PRINT menu will appear, allowing you to adjust printer attributes before sending your presentation to the printer. You can select any one, any combination, or all of these options:

- **Set Black/White Reversal** - In the final print, black will print as white and white will print as black. (DEFAULT: off)

- **Set Centering** - This option will cause the image to be centered on the printer page. (DEFAULT: on)

- **Set Form Feed** - This option will cause an automatic form feed at the end of the print. (DEFAULT: on)

- **Set Rotation** - This option will rotate the image 90 degrees before print. (DEFAULT: off)

- **Set Scaling** - This option will enlarge the image to fit the entire printer page. (DEFAULT: off)

Other printing options can be set with the Setup program or by editing the PRESENTS.CNF file (see Appendix A.)

The list of slides will be sent to the printer.

You can stop a presentation print command and/or return to the **Presents** main menu at any time by pressing <Ctrl-Break>. **Presents** will stop after the current slide is printed.

Executing A Dos Command

In some instances, you may wish to execute a DOS command, but may not wish to be forced to completely exit **Presents** to run the command, then run **Presents** again. The program allows for just such instances:

Return to the main menu (by pressing <Esc>) and select RUN A DOS SHELL. You will temporarily leave the **Presents** environment and be able to execute a DOS command. When you are finished, simply type *EXIT* to return to the **Presents** environment.

Exiting Presents

To exit **Presents**, return to the main menu (by pressing <Esc>) and select EXIT TO MAIN MENU. If changes have been made without saving them, Presents will prompt to confirm exiting.

Making An Independent Presents Disk

In some cases, you may wish to be able to run **Presents** independently of the Dr. Halo IV directory. To do so, you can assemble the necessary files on floppy disk in this way:

Copy the following files from your Dr. Halo IV directory onto a blank formatted disk:

PRESENTS.EXE (The **Presents** program)

HALO.KRN (Kernel file needed by **Presents**)

PRESENTS.CNF (The configuration file)

[device filename]**.DSP** (graphics device driver)

[device filename]**.PRT** (printer device driver)

Any PRE, CUT, PCX, and PAL files needed by the presentation.

Now, you have all you need on the floppy disk to run **Presents.** To display your presentation, load the disk at any time and type

A:>Presents filename↵

or, to display your presentation continuously, type

A:>Presents (filename)↵

or, to run **Presents** (for example, to print your presentation), type

A:>Presents↵

Note: the independent **Presents** disk is for your use only. You cannot distribute independent disks without a license from Media Cybernetics.

Special Considerations

Care must be taken when displaying an image that is smaller than the image already on the display. If the palette of the second image differs radically from the palette of the first image, the differences will be apparent in the portions of the first image that are visible. If this effect is undesired, then clear the screen before displaying the second image.

Many interesting effects can be created using the palette fades. By loading an image (PCX or CUT) with its palette and then loading another palette (PAL), parts of the image can be made to fade in or out.

The PICCVT Utility

The PIC file type, which was used by earlier versions of Dr. HALO (including HALO DPE), is not used by Dr. Halo IV. The reading and writing of PIC files is extremely fast, in comparison with other image file formats. However, this speed was achieved at the expense of device dependence, meaning that a PIC file may not display correctly on a graphics device (or device driver) other than that used to create the file.

At the time the PIC file format was created, this was a worthwhile trade-off, as there were very few graphics devices, and people did not upgrade often. Today, there are hundreds of graphics devices in existence and new ones are constantly appearing. Upgrading hardware is now common. As a result, a device-dependent image file format, no matter how fast, is no longer appropriate.

The PICCVT utility converts PIC files to CUT or PCX files. This allows you to use files created by Dr. HALO III in Dr. Halo IV and other software packages, even on machines with different graphics devices from the one on which the files were created.

PICCVT requires the original device driver (and, in some cases, the original display card) used to create the PIC files you wish to convert. Refer to Chapter 2 for a discussion of setting up your system so that PICCVT is in the same directory as the original graphics device driver(s) as the HALO.CNF file from your old HALO application. The HALO.CNF file tells PICCVT what modes, display, and drivers are

being used. For more information about the configuration options required by PICCVT, and storing these options in a CNF file, see the Options section below, as well as Appendix A.

For the purposes of this chapter, it is assumed that you have your original device driver and HALO.CNF file in the same directory as PICCVT, and that directory is the directory of your old HALO application.

Note that PICCVT may not work with PIC files whose device drivers were developed before 1988. PICCVT also will not work with PIC files created with the Virtual Page.

If you have PIC files that cannot be converted with PICCVT, use the HALO application that created the PIC files to convert your files to device-independent CUT files.

How To Convert PIC Files

If your PIC files, Dr. HALO III device drivers, and the PICCVT utility are in the same directory, first change to that directory.

Then, to run **PICCVT** type the following at the DOS command line:

piccvt <*filename*>.PIC↵

where **<*filename*>** is the name of the file you wish to convert. For the example shown here, the filename chosen was "HALO0001.PIC."

The screen will clear, and the following will appear:

```
C:\DRHALO4>piccvt halo0001.pic

PICCVT PIC File Converter
(c) Media Cybernetics 1991

      Source file path:
      Source file name: halo0001.pic
Destination file path:
Destination file name: halo0001.CUT
Destination file type: CUT

Device: haloIBMV.dev
Mode: 3    Seg: -1    Port: -1
  Press spacebar to continue or 'Q' to quit...
```

Press the spacebar. The screen again clears and the image being converted is displayed. When the conversion is done, the DOS command line returns. Note that the default format for the output file is CUT. Your original file still exists, but a new file is created.

If your PIC files, Dr. HALO III device drivers, and the PICCVT utility are in different directories, make sure the appropriate path designations are present. (i.e., **piccvt d:\images\mom.PIC)**

Options

In DOS notation (as described in Chapter 2), the full PICCVT command line is as follows:

piccvt <*infile*>.pic [<*outfile*>][.<*ext*>] [-<*option*>] [-<*option*>]...↵

The optional <outfile> name allows you to select a new filename for the resulting file. Be aware that selecting the outfile extension of PCX ***does not*** cause the output file to be a PCX file (you would end up with a CUT file with a misleading PCX extension).

The options you may use are described in the following table.

PREFIX	NAME	DESCRIPTION
-D	dspname	Name of your system's graphics display driver (e.g. "HALOIBMV.DEV") THIS MUST BE A Dr. HALO III DEVICE DRIVER
-M	mode	Display Driver Mode (e.g., "2" for 640 x 480 by 16 colors)
-S	seq, port	Display memory address and I/O ports (e.g., -1,-1 for the default local display). This option is not required on most devices.
-F	format	File Format (i.e., "P" for PCX and "C" for CUT)

An example of a PICCVT command line with options is

piccvt halo0002.pic filea.pcx -dHALOIBMV.DEV -m1 -fP

This would convert the file HALO0002.PIC to the file FILEA.PCX at an IBM VGA's 640 x 200 by 16 color resolution (IBM VGA mode 1).

The -D and -M options should exactly match those found in your old HALO application's HALO.CNF file, which you may view on screen with the DOS TYPE command.

All four configuration options can be used on the command line, as shown in the formal command line above, or they can be kept in the

HALO.CNF file. To create a HALO.CNF file, use Setup from your Dr. HALO III.

Again, if your PIC files, Dr. HALO III device drivers, and the PICCVT utility are in different directories, remember to use the appropriate path designations.

Tips and Tricks

The Dr. Halo IV Paint and Imaging Pak is a complex package of powerful tools. As with most complex systems, even after years of using it, you occasionally come up with a technique that simplifies something that had previously been difficult.

This chapter contains a few techniques that Media Cybernetics employees have discovered in using the Paint and Imaging Pak.

Combining Images

The power of the Paint and Imaging Pak lies in the many capabilities for the conversion, editing and combining of different images that are provided. We cannot hope to discuss all of these capabilities and their possible uses thoroughly in this limited space. We do hope with this section to point out some directions for exploration.

Your first considerations when combining disparate images are the capabilities and limitations of your graphics display device. Your options will be limited if you have a 2-color, 4-color, or EGA display device.

In many cases, the images can be combined using Dr. Halo IV, probably by using the Scissor pop-up's Matte mode (⌊) and the Disk Pop-up's Rubberstamp ( ). (Be sure to set the Matte Mode just before entering the Disk pop-up.)

You may wish to bring each image into Dr. Halo IV separately first, in order to "clean up" the image. You may need to use lasso to cut a portion out of the image for use later, or you may need to erase some of the background to black (index 0) for the Matte Paste. Remember that just because the background is very dark does *not* mean that the background is black (index 0), and therefore transparent in the Matte combine mode.

Bi-level (Black and White) Images

The simplest case will be developing Bi-level Black and White images. Any type of source image can be brought into **Viewer** and converted to Bi-level when the image is written. Any color image is converted by calculating the intensity of the color first. The intensity of a color pixel or of a grayscale pixel is then converted through the currently selected halftone process to one or more bi-level pixels. Note that the size (in pixels) of the resulting image will depend on the type of halftoning selected. Refer to the halftone options section of Chapter 8 for more information on controlling the halftoning process.

Note that all of the black pixels in the halftoned image will be index 0, and therefore transparent to the Matte Paste mode. You can generate

some interesting effects by Matte Pasting a halftoned image over other objects (for instance, a gradient background).

Color Images

When the result is to be a color image, there are several options.

M/Color®

The simplest method of combining several disparate images (as it requires no pre-planning) will be to use the M/Color process utilized by **Viewer.** Any type of color image can be loaded into **Viewer**, which will maintain the image in a True Color (24-bit) workspace. When this type of workspace is written to a 16-Color or 256-Color format file, the True Color image will be converted to use a standard M/Color palette. As long as all of the images are written in the same format (16- or 256-Color), they can be combined with ease in Dr. Halo IV later.

Note that every image to be combined in this manner must be brought into **Viewer** as a color image. Bi-level or Grayscale images can be converted by writing intermediate files. Grayscale images can be written as True Color images. For Bi-level images, it will first be necessary to write a Grayscale file, which can be loaded and written as True Color.

The results of combining images in this manner can be mixed. In particular, the M/Color palettes do not contain any gradients, nor any spare area for the generation of a gradient palette. When your display device supports a programmable palette, and 16 or 256 colors, another option to consider that allows more control over the use of the palette is the Optimized Palette feature.

Optimized Palettes

In many cases, even reasonably complex images can be converted to an optimized palette representation that uses only a portion of the palette. The key to this approach is pre-planning.

As a first step, you will need to find out how many palette indexes you must reserve for the images. Each True Color or Grayscale image that

will be incorporated into the final image should be optimized first. You can use the **Preview** option to try out various optimizations and determine the minimum number of palette entries each image requires. You will find that complex True Color images (those with many widely variant colors) will require a larger section of the palette for the optimized image to remain a good representation of the original image. Conversely, Grayscale images may need as few as eight palette indexes to adequately represent the image. Note that a number of different Grayscale images can be optimized to use the same section of the palette.

Having in hand the number of palette entries required by the optimized images, you can now plan out your final palette. All of the indexes not required for the optimized palette images can be reserved for use by Dr. Halo IV. Some potential uses include colors for annotation, gradients, etc. You may wish to reserve the first 16 entries in the palette (on 256-color devices) for the default EGA palette. If the optimized palette images are to be combined using the Matte Cut and Paste mode (described in more detail later in this chapter), where the second image is laid over the first, this may affect which image should use which section of the palette. Due to the way the optimized palettes are loaded, the first image to be loaded should use the highest palette range (see below for more details).

Once the portions of the palette needed by each image have been determined, the images should be optimized into the proper sections of the palette. A suggestion would be to start with the bottom (lowest-numbered) indexes, and work your way up. When the images are loaded into Dr. Halo IV, all of the palette entries from index 0 up to the maximum number used by the optimization will be loaded from the palette file. Any entries in the lower portion not used by a particular palette optimization will be black.

Combining the Images in Dr. Halo IV

When you load the images into Dr. Halo IV, load the image using the *highest* portion of the palette first, then the next highest, etc., so that the unused portions of each palette file do not black out parts used by a previous image. Note that if you make a mistake in this process, it is

possible to re-load only the palette files in the correct order so that the ranges are overlaid correctly.

Now, the portions of the palette that you reserved can be used to generate gradients, the default EGA palette can be loaded into the bottom 16 colors, etc. as you desire.

Using Dr. Halo IV's Matte Combine Mode

Overlapping Irregularly Shaped Images

The (disk) pop-up's (rubberstamp), used with the (scissors) pop-up's matte combine ( ), will allow you to overlap irregularly shaped images at will, once they have been properly prepared.

Correcting for Wrongly Matted or Not Matted Out Pixels

You will want to view each image separately, checking for background areas that have pixels that are dark but not black (color index 0), and for internal areas having black pixels (remember that all black areas will be transparent when the image is placed in Matte mode).

One way to make this process easy is to use the Palette Editor to temporarily make these dark colors brighter and more visible against the black background. To do this, first, set the current drawing color to one of the troublesome colors using the Alternate Fatbit editor( ). Bring up the Palette Editor, and make sure to note down the original RGB settings so that you can restore them later! Now you can make pixels of that color stand out by boosting the Red, Green, and/or Blue.

To correct pixels that are inside your image (that you are changing from black), use the Alternate Fatbit editor again. You can pick up another dark color from nearby portions of the image, and easily replace the black pixels.

You can "automate" this process to some degree, using the (Eraser) pop-up's Color Swap function. Set the foreground color to black, and the background color to one of the darker colors in your image. Then bring up the Eraser pop-up, and select . Size the rubberband box fairly small, since you need to be careful not to change your black background

as well as the internal pixels. Now as you "erase" the interior areas of your image, any offending black pixels will be changed to the dark color that you selected as the background color.

To clean up the background, which you will want to be solid black (index 0), make sure the clear color is set to black, and use the eraser for larger areas. Then you can use the normal Fatbit mode to zero in on the edges of the image, and use the right button to black out any stray pixels.

You can also use the pop-up's icon with a black clear color, tracing the edge of your image as one or more sides of the polygon.

Or you can do the same with the pop-up's icon with the drawing color set to black and with no hatch pattern selected.

Creating an Original Airbrush Pattern

You can create your own airbrush by using the Rubberstamp option of the Scissors pop-up menu in the following way:

1. Draw the image you want to use as your airbrush on a black background.

2. Select the Matte and Rubberstamp options from the Scissors pop-up menu.

3. Capture your image in the rubberband box. You can now draw across the screen with your new airbrush pattern by moving the locator with the left button pressed.

An airbrush created in this manner will only operate in Matte mode. Refer to the Airbrush menu for details.

Filling With Two Colors (i.e., no Hatch)

To create a filled polygon (including circle or rectangle) that has a solid interior with a different colored border:

1. Select the Foreground and Background colors to be the same color.

2. Select any hatch pattern.

3. Select a filled circle, rectangle, or polygon. The interior is filled with a "hatch" that has a foreground and background the same color, resulting in a solid color.

Grabbing From Another System

To grab a screen from an application on another system, do the following:

1. Find out what graphics device driver and resolution are being used by the application on the other system (see Appendix C for a list of graphics device drivers).

2. Run Setup and configure the GRAB settings to that driver and resolution.

3. Prepare a diskette containing the device driver for the graphics display installed in the other system, GRAB.EXE, and GRAB.CNF set up for that device and mode.

4. Modify GRAB.CNF on the floppy, using any text editor, so that it grabs files to a directory on the A: drive (refer to Appendix A for information on changing a GRAB.CNF file).

5. Insert the diskette into the drive of the other system and run **Grab** from the floppy (e.g., enter A:GRAB↵) and then run the application.

6. When the desired image is on the screen, press <Ctrl-Alt-G>. The image is loaded on the floppy and can then be brought to your system.

Multiple Palettes With One Image

Interesting "effects" can be created by loading a sequence of palettes while a single image is displayed. As the palettes are loaded, the image will appear to change color or parts of the images can be made to fade in and out.

To see an example of these effects, start with an image that has a solid color background, in this case a three "slice" pie chart on a black background. Draw each of the slices with a different color index, say 10, 11 and 12. Once drawn, edit the palette of the image so that colors 10, 11 and 12 are the same color as the background, black in this case. As this is done the slices will become invisible but are still there. Save the image with palette.

Now edit the palette so that color 10 is the desired color and the first slice is visible; then save just the palette. Keeping color 10 set, set color 11 and save the palette again. Repeat for color 12. This gives one image file and three palette files.

In **Presents,** edit a presentation so that the image file is loaded followed by the three palette files in order. Give the palette files a fade-in time but no fade-out time. As the presentation is shown, the image, with invisible pie chart, is loaded. Then as each palette file is loaded, the slices of the pie will fade-in.

Images and Aspect Ratio

Images possess an attribute called aspect ratio. Aspect ratio is the ratio between the image's horizontal and vertical resolutions. When the aspect ratio is 1.0 (the horizontal and vertical resolutions are equal), then each pixel is square. The assumption made by many applications (including **Viewer**) is that the aspect ratio of all images is 1.0.

In the real world you may encounter images that do not have a 1.0 aspect ratio. For a display adapter to have an aspect ratio of 1.0, the ratio of the horizontal size versus vertical size should normally be 4:3, since most display monitors have physical dimensions in that ratio. For example many VGA support 640 x 480 and 800 x 600 modes which are in this 4:3 relationship and therefore have an aspect ratio of 1.0. There are many popular display adapters however whose aspect ratio is not 1.0. Notable examples include the IBM CGA and EGA adapter display modes, and the Hercules Monochrome Graphic display. Images that have been captured from these display modes (including ones captured by **Grab**) will have the same aspect ratio as the original display screen. In many cases, images that have been written by applications running in these modes will not be aspect corrected to 1.0, either.

When this kind of image is brought into an application that assumes square pixels, the appearance of the image will be distorted. For instance, with the IBM EGA 640 by 350 display mode, images will look "squashed". If the display device is not aspect correct, Dr. Halo IV makes some accommodations such as drawing circles that are deliberately "distorted" in an opposite manner in order to look round on the display.

The Dr. Halo IV Virtual Page always has an aspect ratio of 1.0, and can be used with the Cut and Paste Scale function to perform manual aspect correction. Here's how:

1. Set up a virtual page that is the correct size. For the example above (640 x 350), you would want to want to set up a 640 by 480 Virtual Page (4 * 160 by 3 * 160).

2. Load the image to be corrected. From the Disk menu, load the EGA image into the Virtual Page in the top left corner. Do not try to load the image from the command line, or the Virtual Page will be configured to the 640 by 350 size of the image.

3. Scale the image. After selecting the Scale function under the Cut and Paste menu, use the Virtual Page icon to go into Virtual Page mode. Now select as the starting area the entire original image and click the left button. Size the destination area to include the entire Virtual Page, and click the left button once more. Save the entire Virtual Page image to a new file and the resulting image will now have an aspect ratio of 1.0.

Printing

The Dr. Halo IV Paint and Imaging Pak gives you several options for printing images. The printing method that you choose will depend on the ultimate purpose of your image. The following discussion assumes that you are printing "actual size" in **Viewer,** and that scaling is turned on in Dr. Halo IV.

Printing in Viewer

The printing methods available from **Viewer** are very advanced. **Viewer** can use Error Diffusion halftoning during the printing process, and can apply software halftoning even on printers supporting only proprietary printer-specific halftoning. In addition, **Viewer** allows the most control over placement of the image on the printed page, including the ability to scale the image without affecting the aspect ratio of the image, which introduces spatial distortion.

When printing, **Viewer** always assumes that the image is composed of square pixels (i.e. it is aspect correct). This may or may not be true, depending on the source of the image (see the previous section for details). **Viewer** will then maintain that aspect ratio regardless of the printer aspect ratio (many printers, particularly impact printers, do not print square pixels).

When you are developing images that need to be incorporated into other applications, and are only using printing as a proofing process, you will probably want to maintain the image with square pixels, and use **Viewer** for all printing. The only real disadvantage to this method is that printing large True Color workspaces with **Viewer** may be considerably slower than printing through Dr. Halo IV. There should be no appreciable difference in printing speed for Grayscale and Bi-level workspaces.

Printing in Dr. Halo IV

Printing through Dr. Halo IV is more device-dependent than printing through **Viewer.** If your printer supports one or more hardware halftoning algorithms (for instance, all Postscript printers), Dr. Halo IV

will only print using the printer-specific hardware halftoning. In all other cases (all impact printers and most laser printers), the software halftoning algorithms used are the same as those used in **Viewer,** except for the absence of Error Diffusion halftoning. Note also that your positioning options are limited to placing the image in the top left corner of the page or centering it.

When printing with no virtual page enabled, Dr. Halo IV will calculate the scaling so that the aspect ratio of the image is maintained. In this case, the aspect ratio of the image fits the aspect ratio of the screen so that circles will appear circular. Notable cases where the display aspect ratio is not 1.0 include the IBM CGA and EGA adapter display modes, and the Hercules Monochrome Graphics display mode. Most Super VGA or Extended VGA display modes have a 1.0 aspect ratio.

When you are developing images that are going to be used as screen displays on one of these non-square display modes, and are only using printing as a proofing process, you will want to use Dr. Halo IV for all printing.

When you are developing images that do not contain more than 256 distinct colors (or can be optimized to a reasonable representation), you may be able to print the resulting images faster using Dr. Halo IV.

Drawing Shaded Cones

You can draw a shaded cone using the Radial Gradient circles. You will want to size the circle so that the radius (from the center to one edge) is approximately the height of the cone. Draw the Radial Gradient, then use the scissors to cut out a pie-shaped wedge of the circle. Use the center point as the point of the wedge. Then draw the lines of the wedge to two points near the bottom of the circle (these two points define the width of the cone). The cut area will make a perfect cone.

Appendix A
Configuration Options

Configuration files are used to configure Dr. Halo IV and the utilities that comprise the Dr. Halo IV Paint and Imaging Pak. Configuration files contain the names of the device drivers and other relevant information regarding the hardware environment in which the Paint and Imaging Pak is to be used. This appendix describes the various configuration options and their use.

Note: The information contained in this appendix is not intended for use by beginners. If you are a beginner, in most cases, it is better to rerun Setup if you have made changes to your configuration.

Configuration Files

Configuration files, which take the extension CNF, are used to convey the configuration options to the Paint and Imaging Pak components. These files are created by the Setup utility, and are updated each time you run Setup. The CNF files, which are assumed to be in the same directory as the Paint and Imaging Pak executables, are read at program startup. They consist of ASCII text.

Dr. Halo IV, Grab, BFEDITR, and Presents

The configuration files of Dr. Halo IV, **Grab, BFEDITR,** and **Presents** consist of lines of text, with each line appearing in the following form:

-option_flag[parameters],[parameter]. . .

where "option_flag" is a single ASCII character denoting a particular option and "parameters" is a list of one or more parameters, each separated by a comma. Note that no embedded spaces are allowed and that each option is on a separate line.

The only exception are comment lines, which begin with an "#" character and then can contain text that describes the options. Comments are added to help you better understand each option.

PICCVT

PICCVT uses a similar CNF file, called HALO.CNF, except that this file was created by earlier versions of Dr. HALO or HALO DPE.

Viewer

In addition to configuration infromation, the **Viewer** configuration file stores location of windows, and the directories most recently used, etc, so it must be updated each time you exit **Viewer**.

Configuration File Names

The CNF files and the strings used to start the programs are as follows (this table is copied in Chapter 2):

PROGRAM	CNF FILE	STRING
Dr. Halo IV	drhalo.cnf	[<*dr*>:][<*path*>]drhalo [<*filename*>][.<*ext*>] [<*para*>] [<*para*>]...↵
Viewer	viewer.cnf	[<*dr*>:][<*path*>]viewer [-?]↵
Presents	presents.cnf	[<*dr*>:][<*path*>]presents [<*para*>] [<*para*>]...↵
Grab	grab.cnf	[<*dr*>:][<*path*>]grab [<*para*>] [<*para*>]...↵
Bit Font Editor	bfeditr.cnf	[<*dr*>:][<*path*>]bfeditr [-?]↵
PICCVT	halo.cnf	[<*dr*>:][<*path*>]piccvt [<*filename*>][<*filename*>] [<*para*>]...↵

Each of the CNF files originally created by Setup is very well documented as to how to use each option. By way of explanation of the options, a sample CNF file for each utility is reproduced here.

Dr. Halo IV

```
# #  Configuration file for: Dr. HALO IV
#
#
#
#  Display Configuration:
#
#  The -D option sets the graphics display driver.
#
-dE:\DRHALO4\drivers\ahdatil.dsp
#
#  The -M option sets the graphics display mode.
#
-m2
#
#
#  Locator Configuration:
#
#  The -P option sets the locator driver and COM port.
#
-pE:\DRHALO4\drivers\ahdmou.loc,-1
#
#
#  Printer Configuration:
```

```
#
#  The -H option sets the printer driver and optional parameters
#   Options following the driver name are
#    (in the following order):
#    Printer ID      Used for drivers supporting more one printer.
#    Page Format     Select A size (1), Wide carriage (4) or
#    A4 (32).
#    Print DPI       Select the print resolution.
#    Printer Port    Set the LPT or COM port.
#    Comm Params     Specify serial communications parameters.
#    Orientation     Specify Portrait (0) or Landscape (1)
#    B/W Reversal    Specify Reversal (0) or Image mode (1)
#    Output Mode     Specify output: BIOS (0), DOS (1), I/O (2),
#                    file (3).
#    Number Copies   Specify number of copies to print.
#    Transparency    Select transparency mode.
#
-hE:\DRHALO4\drivers\ahdljtp.prt,-1,1,3,0
#
#
#  Miscellaneous Configuration:
#
#
#
# The -V option sets the Dr. HALO VRI parameters.
#  Options following the -V are (in the following order):
#  Undo [, Width, Height [, EMS pages [, XMS pages [,Swap File]]]]
#      Undo         Select whether UNDO available (0 = No, 1 = Yes)
#      Width          Specify Virtual Page (VRI) width.
#      Height         Specify Virtual Page (VRI) height.
#                     Note: both Width and Height must be specified.
#      EMS pages     Number of 16K EMS pages for VRI (-1 = all).
#      XMS pages     Number of 16K XMS pages for VRI (-1 = all).
#      Swap File     Full pathname to file to use for VRI overflow.
#
-v1,1024,768,0
#
```

```
#   The -F option sets the font search path.
#
-fe:\drhalo4\fonts\
#
#   The -I option sets the image search path.
#
-iE:\DRHALO4\images\
#
#   The -U option sets whether to display coordinate and
# color information.
#
-u1
#
#   The -G option disables the Copyright screen.
-g
```

Viewer

```
# #
;   Configuration file for: Viewer
#
#PRINTERS
Canon LBP-8,                                    ahdcna2.prt
Canon8 III,                                     ahdcna2.prt
Citizen 9-pin B&W,                              ahdbw8.prt
Citizen 9-pin Color,                            ahdco8.prt
Citizen 24-pin B&W,                             ahdbw24.prt
Citizen 24-pin Color,                           ahdco24.prt
Epson-compatible 9-pin B&W,                     ahdbw8.prt
Epson-compatible 9-pin Color,                   ahdco8.prt
Epson-compatible 24-pin B&W,                    ahdbw24.prt
Epson-compatible 24-pin Color,                  ahdco24.prt
Epson GQ-3500,                                  ahdepgq.prt
Epson LQ-2500 Series B&W,                       ahdbw24.prt
Epson LQ-2500 Series Color,                     ahdco24.prt
Epson JX-80 B&W,                                ahdbw8.prt
Epson JX-80 Color,                              ahdco8.prt
```

```
Epson MX-80,                                    ahdbw8.prt
Fujitsu DL2400 B&W,                             ahdbw24.prt
Fujitsu DL2400 Color,                           ahdco24.prt
Hewlett Packard DeskJet,                        ahddjet.prt
Hewlett Packard LaserJet+,                      ahdljtp.prt
Hewlett Packard LaserJet II,                    ahdljtp.prt
Hewlett Packard LaserJet III,                   ahdljtp.prt
Hewlett Packard PaintJet,                       ahdpjet.prt
Hewlett Packard PaintJet XL,                    ahdpjxl.prt
Kodak Diconix 150 Plus,                         ahddcnx.prt
Laser Master Cap Card,                          ahdlmx6.prt
Laser Master LX-6,                              ahdlmx6.prt
Mitsubishi G-500,                               ahdmits.prt
NEC P5XL B&W,                                   ahdbw24.prt
NEC P5XL Color,                                 ahdco24.prt
Panasonic KX-P1524,                             ahdbw24.prt
Panasonic KX-P4450,                             ahdpa44.prt
Postscript Printer (parallel),                  ahdpsct.prt
Postscript Printer (serial),                    ahdpscs.prt
Ricoh PC Laser 6000,                            ahdrcpc.prt
Seiko CH-5504,                                  ahdsi04.prt
Sharp JX-720,                                   ahdshrp.prt
Sharp JX-730,                                   ahdsh73.prt
Star 9-pin B&W,                                 ahdbw8.prt
Star 9-pin Color,                               ahdco8.prt
Star 24-pin B&W,                                ahdbw24.prt
Star 24-pin Color,                              ahdco24.prt
Tektronix 4696,                                 ahdtk96.prt
Tektronix Color Quick (4697),                   ahdtk97.prt
Toshiba P351,                                   ahdtosh.prt
Toshiba P1351,                                  ahdtosh.prt
Xerox4020,                                      ahdxjet.prt
#
#
# Display Configuration:
DisplayDriver = E:\DRHALO4\drivers\ahdatil.dsp
DisplayNumber = 14
```

```
DisplayMode = 2
#
# Locator Configuration:
LocatorDriver = E:\DRHALO4\drivers\ahdmou.loc
#
# Printer Configuration:
PrintPath = E:\DRHALO4\drivers\
PrinterDriver = E:\DRHALO4\drivers\ahdljtp.prt
PrinterNumber = 20
PrinterDpi = 3
PrinterPort = 0
#
# Miscellaneous Configuration:
CutPath = E:\DRHALO4\IMAGES\
TiffPath = D:\DH4NEW\IMG\
PcxPath = E:\DRHALO4\IMAGES\
TgaPath = E:\HJ2\
GrayWindowOpen = 1, 17, 204
BCWindowOpen = 1, 10, 30
```

Presents

```
# #
#  Configuration file for: Presents
#
#
#
#  Display Configuration:
#
#  The -D option sets the graphics display driver.
#
-dE:\DRHALO4\drivers\ahdatil.dsp
#
#  The -M option sets the graphics display mode.
#
-m2
```

```
#
#
#   Printer Configuration:
#
#   The -H option sets the printer driver and optional parameters
#
-hE:\DRHALO4\drivers\ahdljtp.prt,-1,1,3,0
```

Grab

```
# #
#   Configuration file for: Grab
#
#
#
#   Display Configuration:
#
#   The -D option sets the graphics display driver.
#
-dE:\DRHALO4\drivers\ahdatil.dsp
#
#   The -M option sets the graphics display mode.
#
-m2
#
#   The -I option sets the image search path.
#
-iE:\DRHALO4\images\
#
#   The -T option sets the Grab image format: Cut (C) or PCX (P).
#
-tP
```

Bit Font Editor

```
#
#   Configuration file for: Bit Font Editor
#
#
#   Display Configuration:
#
#   The -D option sets the graphics display driver.
#
-dE:\DRHALO4\drivers\ahdatil.dsp
#
#   The -M option sets the graphics display mode.
#
-m2
#
#   The -P option sets the locator driver and COM port.
#
-pE:\DRHALO4\drivers\ahdmou.loc,-1
#   The -F option sets the font search path.
#
-fe:\drhalo4\fonts\
```

PICCVT

Because PICCVT uses the HALO.CNF configuration file of earlier versions of Dr. HALO or HALO DPE, there is no easy sample to present here. However the PICCVT commands are as follows:

```
# Usage: PICCVRT infile [outfile] [options]
    infile          Source file to convert.
    outfile         Destination of converted file.
    -Ddspname       Specify graphics display driver.
    -Mmode          Specify display driver mode.
    -Sseg,port      Specify display memory address and I/O ports.
    -Fformat        Specify destination format.
```

Using the Command Line

With the exception of **Viewer,** where only the **-G** and **-?** commands can be issued from the command line, the same commands that are entered line by line in the CNF files may be issued at the command line upon starting up the Dr. Halo IV Paint and Imaging Pak components.

For example, to configure Dr. Halo for IBM EGA in 640 x 350, 16 colors (mode 2) assuming that Dr. Halo IV is installed on your C: drive, type the following:

DRHALO -DC:\DRHALO4\DEVICES\AHDIBME.DSP -M2↵

Each command line option must be separated by a space. Configuration options entered on the command line override any corresponding options contained in the CNF file.

Options

OPTION	DESCRIPTION
-D*device*	Graphics Device (Required for all utilities) *device* = name of graphics device driver file.
-F*filename*	Font Search Path (Valid for Dr. Halo IV and Bit Font Editor) *filename* = path to search for font files. This option allows you to set the path where the applications look for font files and/or the font file extension. The default path is *.FNT in the current directory.
-G	Suppress the copyright sign-on. (Valid for the Dr. Halo IV CNF file only. May also be accepted on the Viewer command line.)

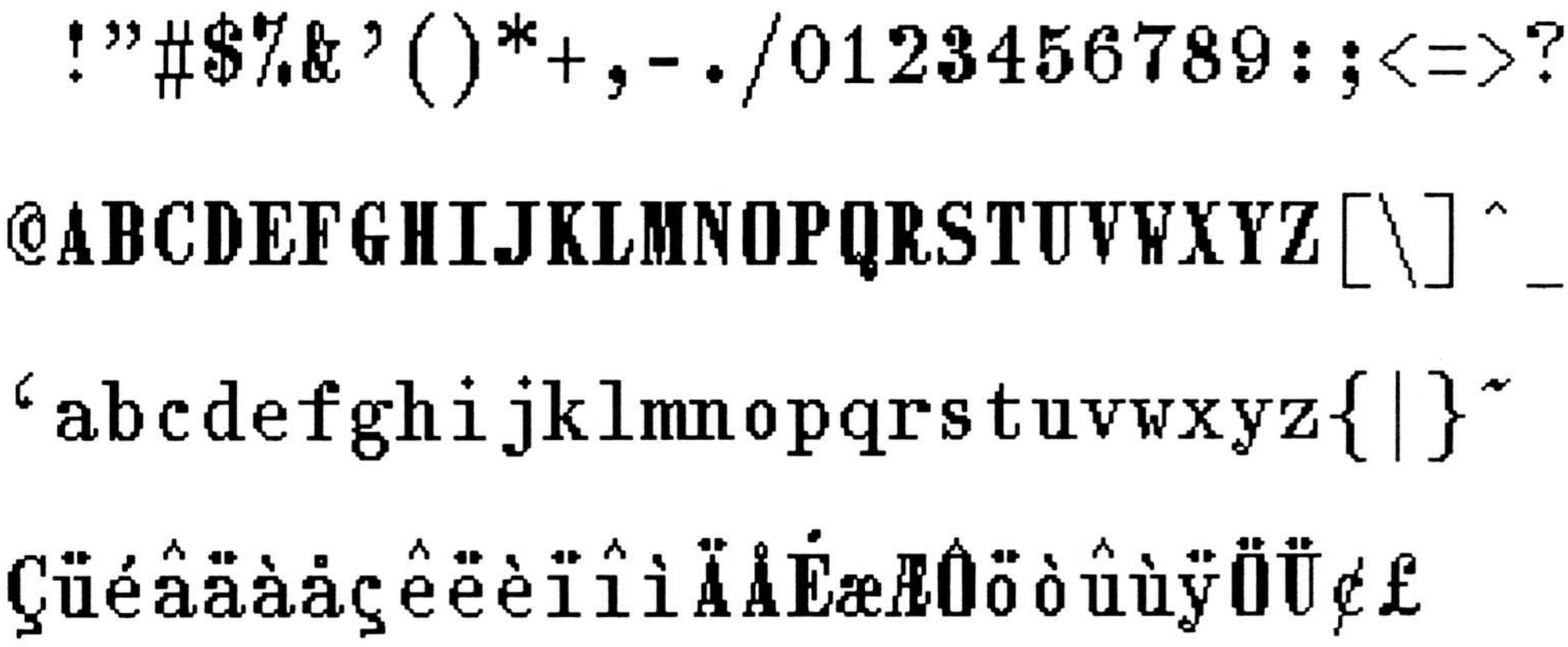
OPTION	DESCRIPTION
-H*pdevice, pattr*	Printer Device *pdevice* = name of printer device driver file. *pattr* = printer attributes. Printer attributes may be placed (each separated by a comma) after the driver name. Attributes are (in order): printer I/O, page format, DPI, port, COM parameters, orientation, output mode, copies, transparency
-I*pathname*	Pathname (Dr. Halo IV and Grab only) *pathname* = path to search for loading or saving image files.
-K*keynumber*	GRAB hot key (GRAB only) *keynumber* = the number of the function key (0-9) to be used in GRAB sequence of CTRL-ALT-KEY. Use *keynumber* = ! to assign the Print Screen key.
-M*modenumber*	Graphics mode *modenumber* = the graphics mode for initialization.
-N	No Clear (Dr. Halo IV only) This option instructs the application not to clear the screen when it begins. This option should only be used for a secondary monitor that has been properly initialized to the appropriate graphics mode.
-P*ldevice,n*	Locator Device (Dr. Halo IV, Viewer, Bit Font Editor) *ldevice* = name of locator device driver file. *n* = port number for locator. To use a manufacturer-supplied locator driver, *ldevice* must be AHDMOU.LOC in which case *n* is ignored. To use the keyboard as the locator, *ldevice* must be AHDKEY.LOC in which case *n* is ignored.
-S*seg,reg*	Graphics Device Memory Segments *seg* = memory base address of your graphics device. *reg* = register base address of your graphics device.

OPTION	DESCRIPTION
-T*n*	Grab image type (Grab only) *n* = C for the HALO CUT file format. *n* = P for the PCX file format.
-U	Display status (Dr. Halo IV only) This option displays the coordinates of the cursor and the current colors in a status box on the bottom right of the screen.
-V*u,h,v,ems,xms,* *filename*	Virtual Page (Dr. Halo IV only) *u* = a 0/1 flag controlling the enabling of Undo *h* = horizontal dimension of Virtual Page *v* = vertical dimension of Virtual Page *ems* = number of 16K EMS pages to use *xms* = number of 16K XMS pages to use *filename* = pathname of a file for the Virtual Page overflow if the entire Virtual Page will not fit in memory. All options other than *u* may be omitted to accept the default configuration. To disable the Virtual Page, comment or remove any **-V** lines from DRHALO.CNF. All of the options except for *filename* can be set to -1 to accept the default. When the *h* or *v* options are set to -1, the virtual page assumes the size of the initial image file (if supplied) or the screen size (whichever is larger). The default for *ems* and *xms* is to use all available memory.
-X*x,y*	Crosshair cursor size (Dr. Halo IV only) *x* = vertical cursor size (in pixels) *y* = horizontal cursor size (in pixels)
-+*aspect*	Set display aspect ratio (Dr. Halo IV only) *aspect* = new display aspect ratio.
-?	Display HELP (All utilities)

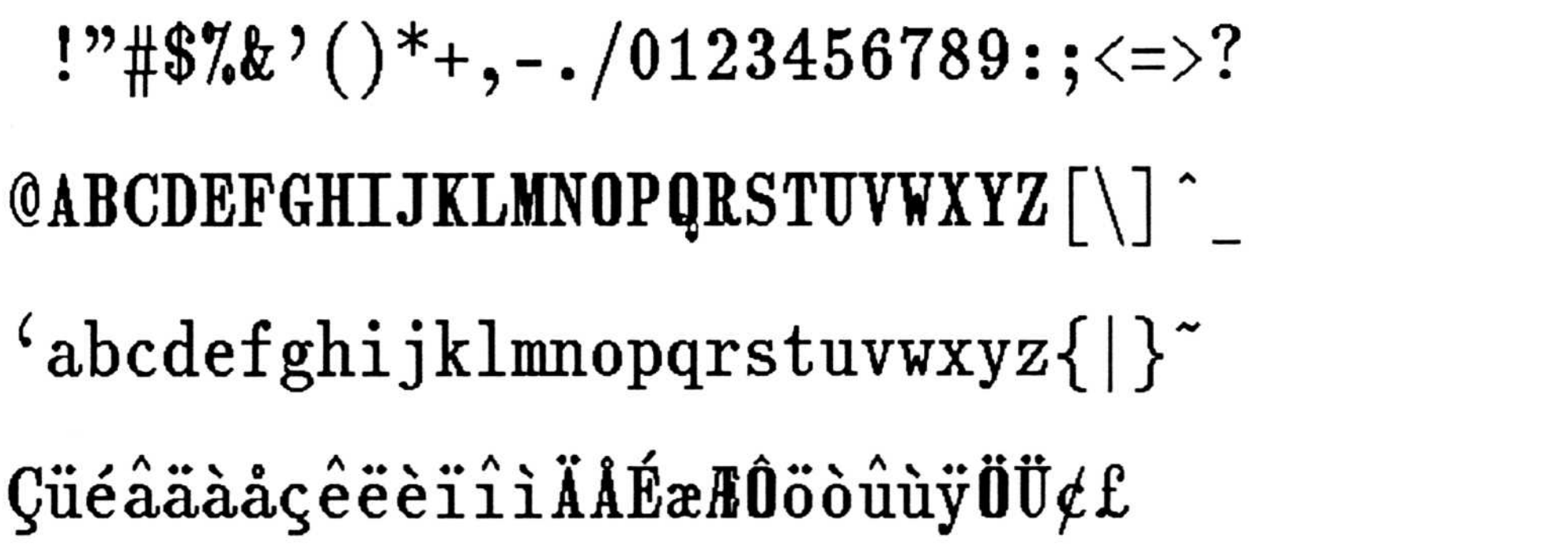
Appendix B
Dr. Halo IV Fonts

This appendix contains printouts of each of the the Dr. Halo IV fonts for your ease of reference.

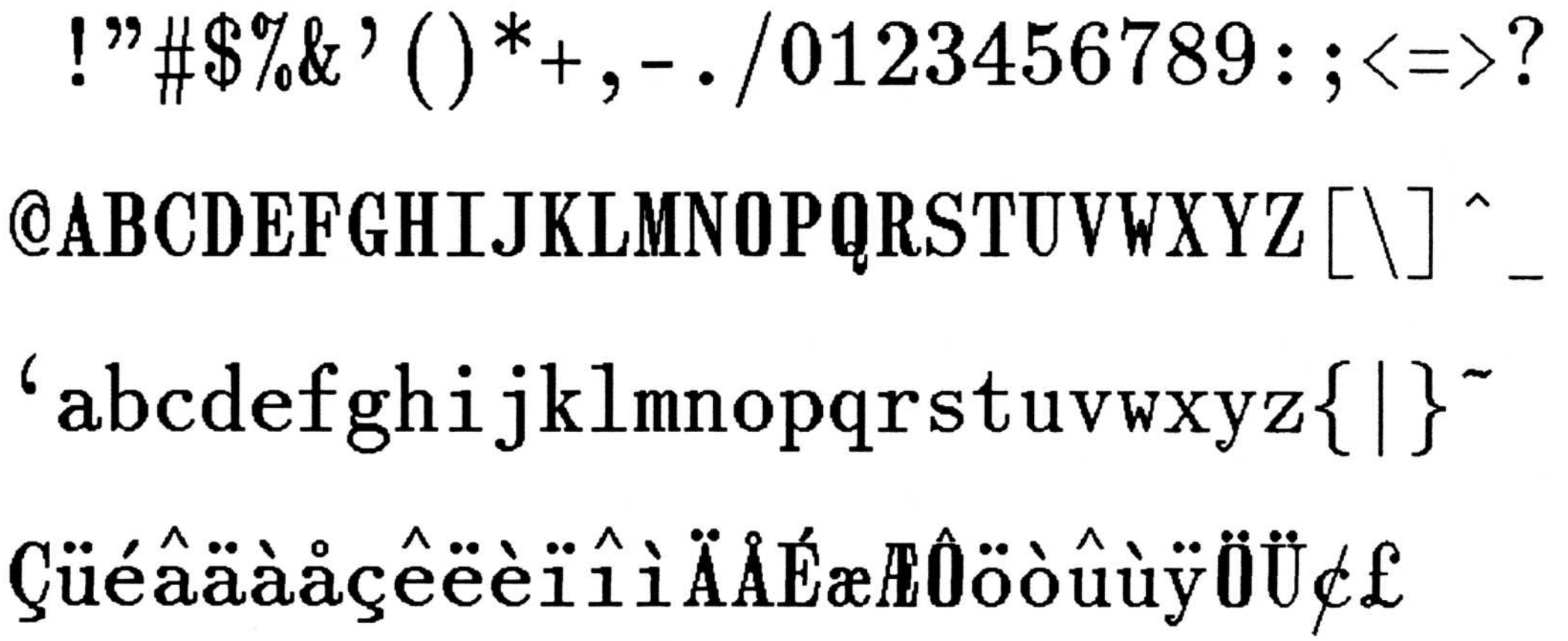
The fonts shown on pages B-1 through B-12 are bit-mapped fonts. The fonts on the remaining pages are stroke fonts.



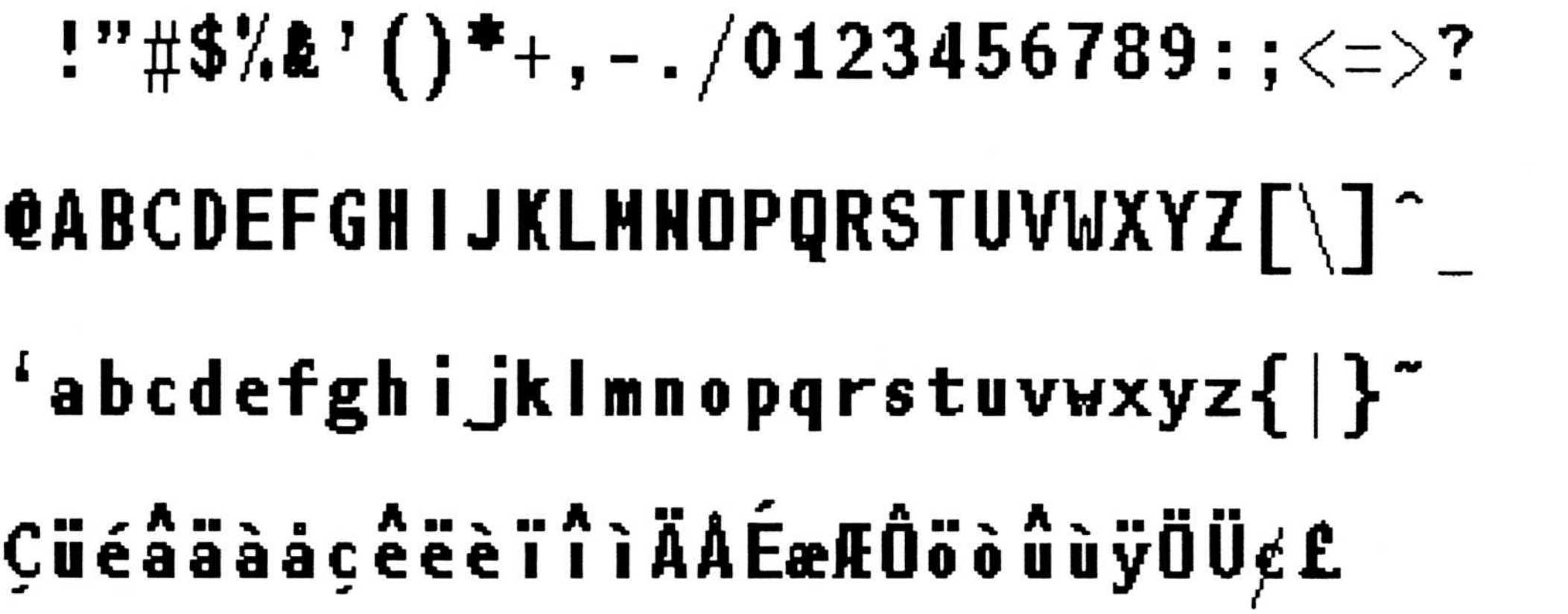
AHD310.FNT Shown: 2x
Cell width: 29 Cell height: 12



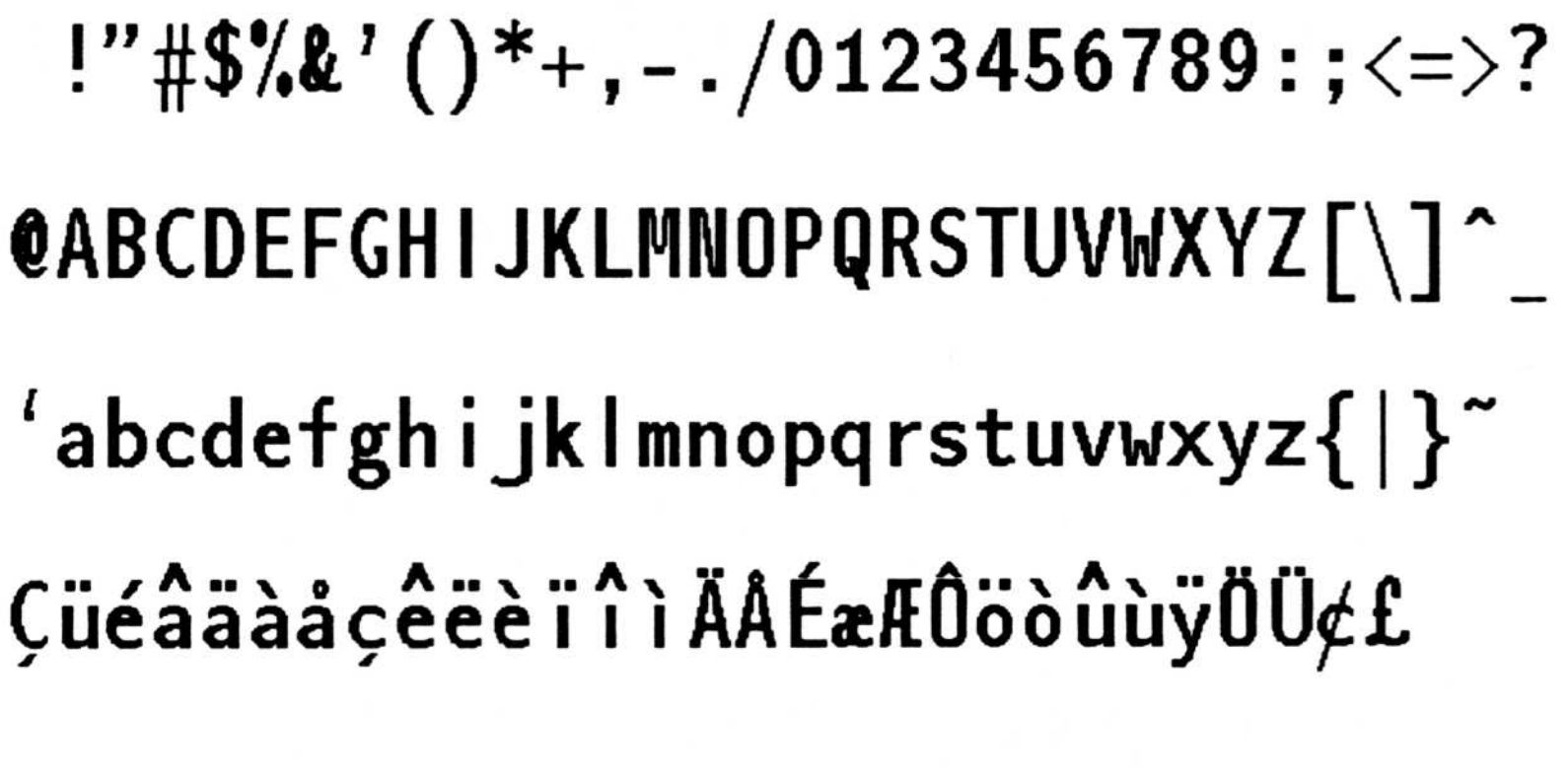
AHD311.FNT Shown: 1x
Cell width: 49 Cell height: 19



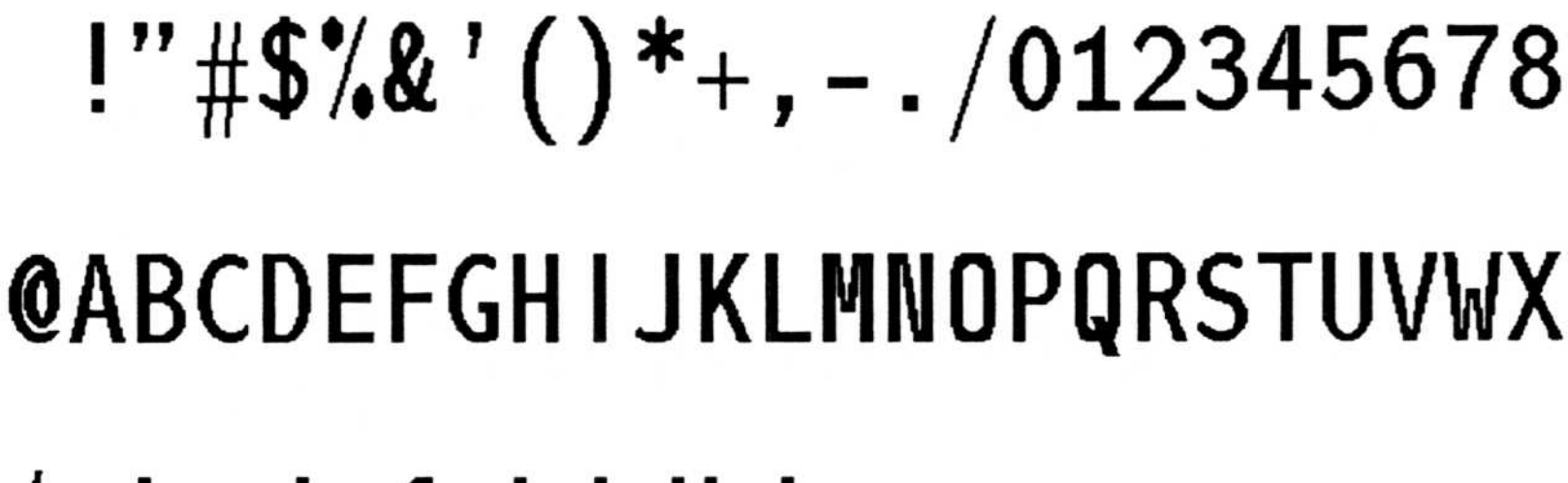
AHD312.FNT Shown: 1x
Cell width: 61 Cell height: 25



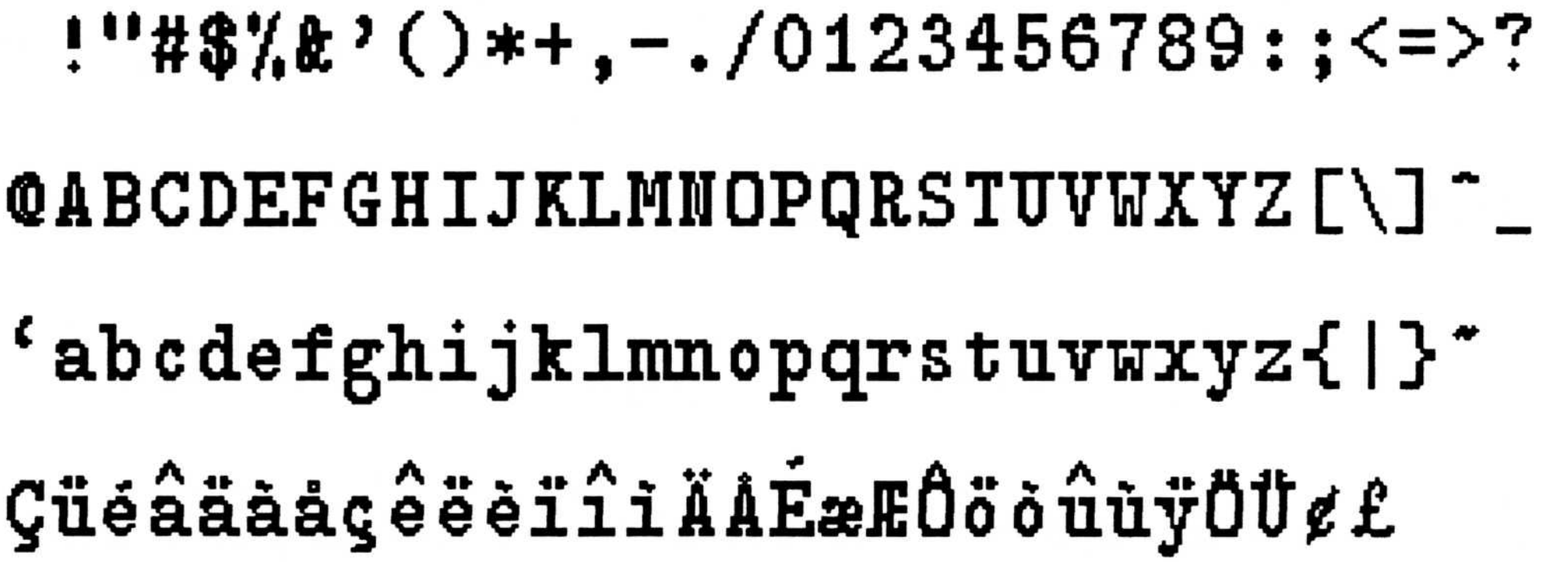
AHD320.FNT Shown: 2x
Cell width: 29 Cell height: 12



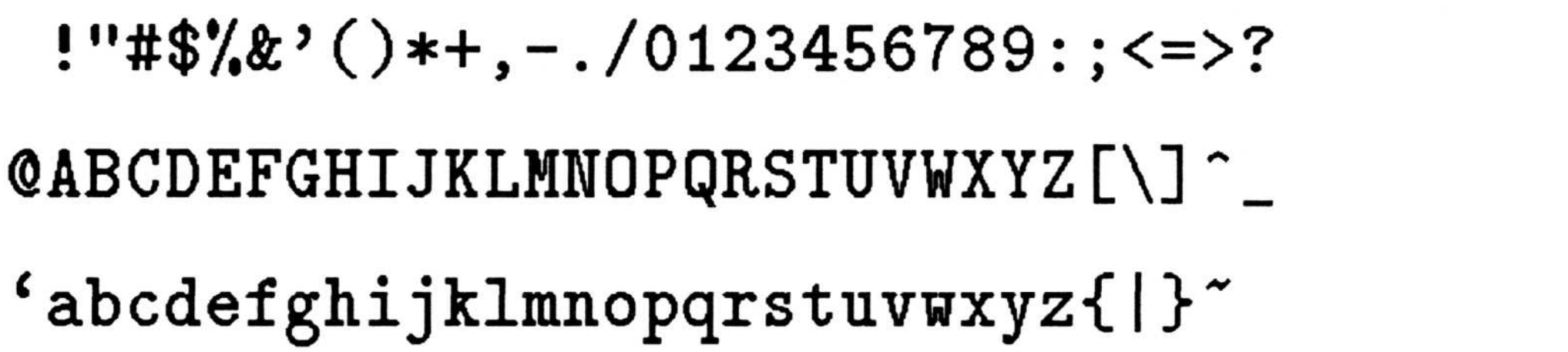
AHD321.FNT Shown: 1x
Cell width: 49 Cell height: 19



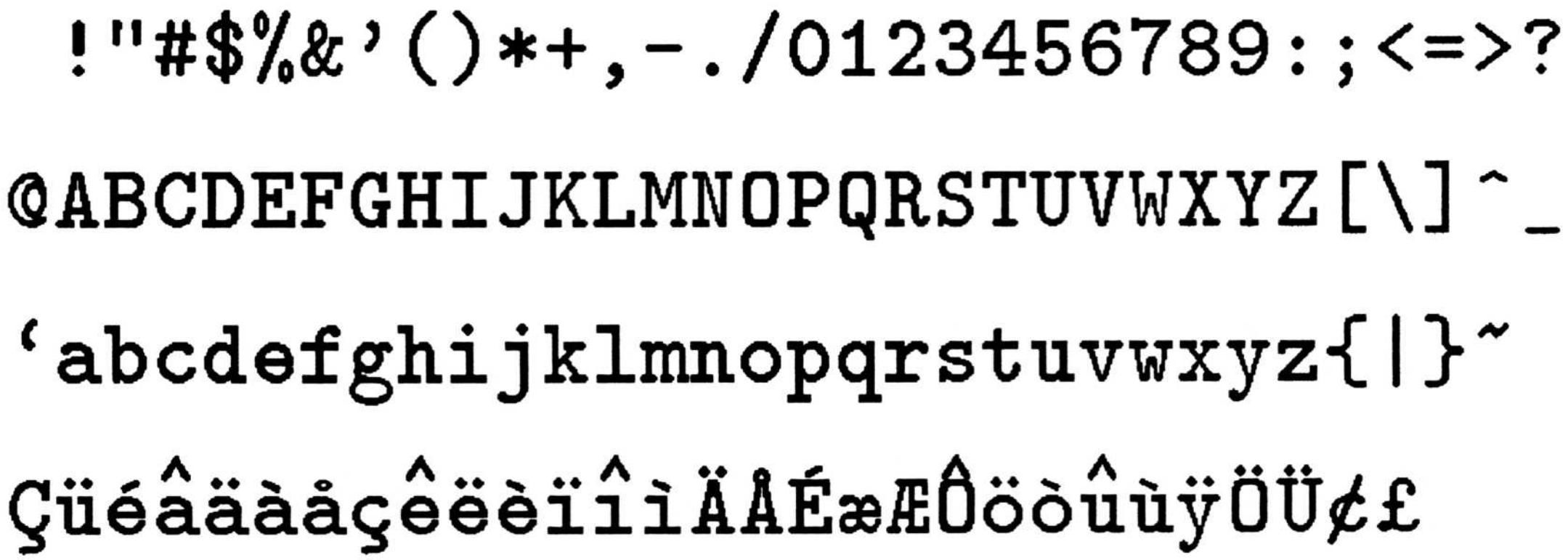
AHD322.FNT Shown: 1x
Cell width: 61 Cell height: 25



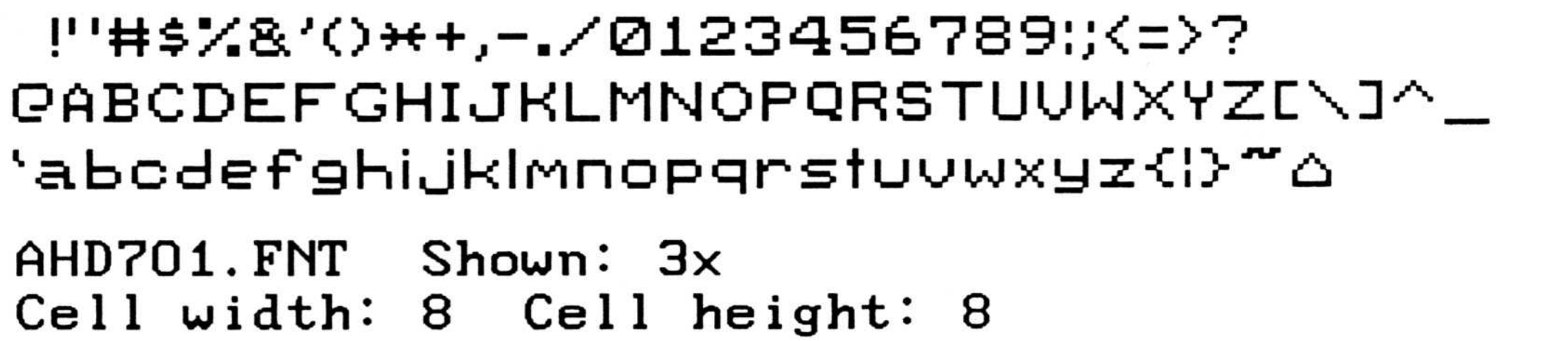
AHD330.FNT Shown: 2x
Cell width: 26 Cell height: 12



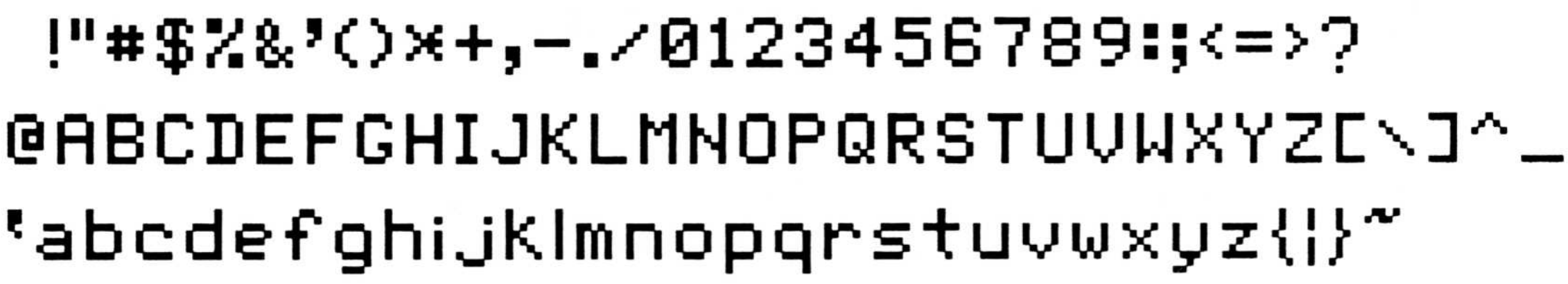
AHD331.FNT Shown: 1x
Cell width: 43 Cell height: 20



AHD332.FNT Shown: 1x
Cell width: 55 Cell height: 26

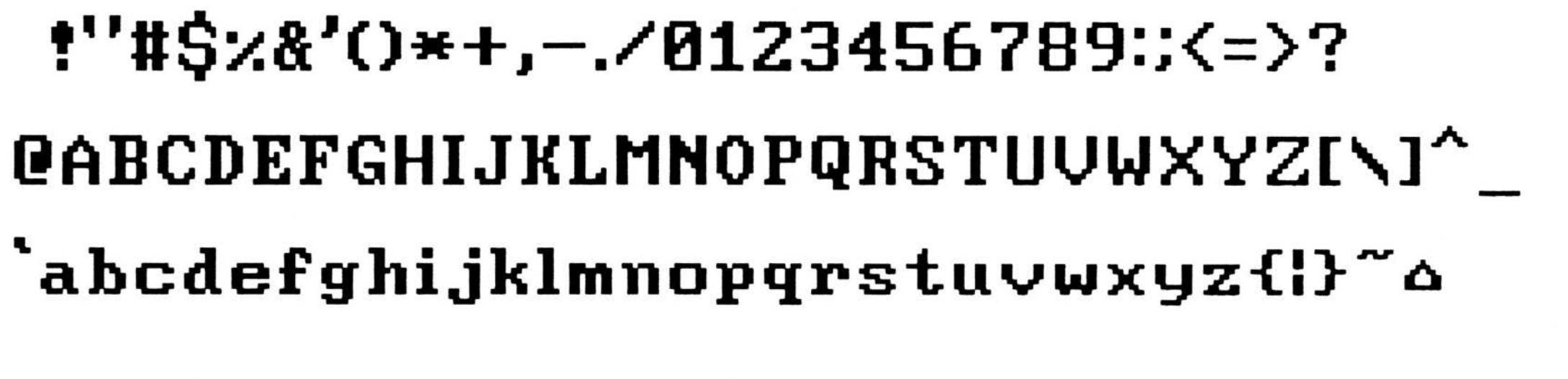


AHD701.FNT Shown: 3x
Cell width: 8 Cell height: 8



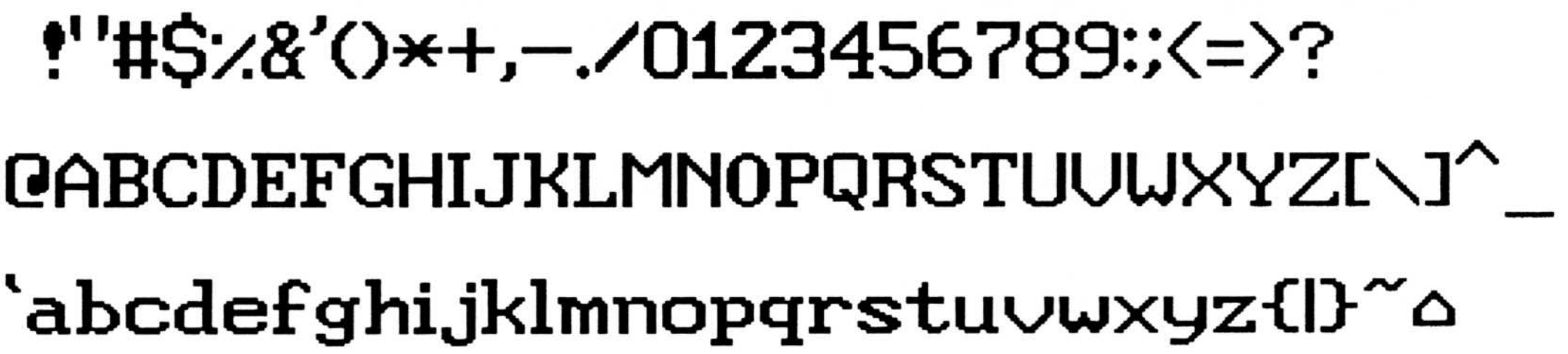
AHD702.FNT Shown: 4x
Cell width: 9 Cell height: 6

AHD710.FNT Shown: 2x
Cell width: 16 Cell height: 16

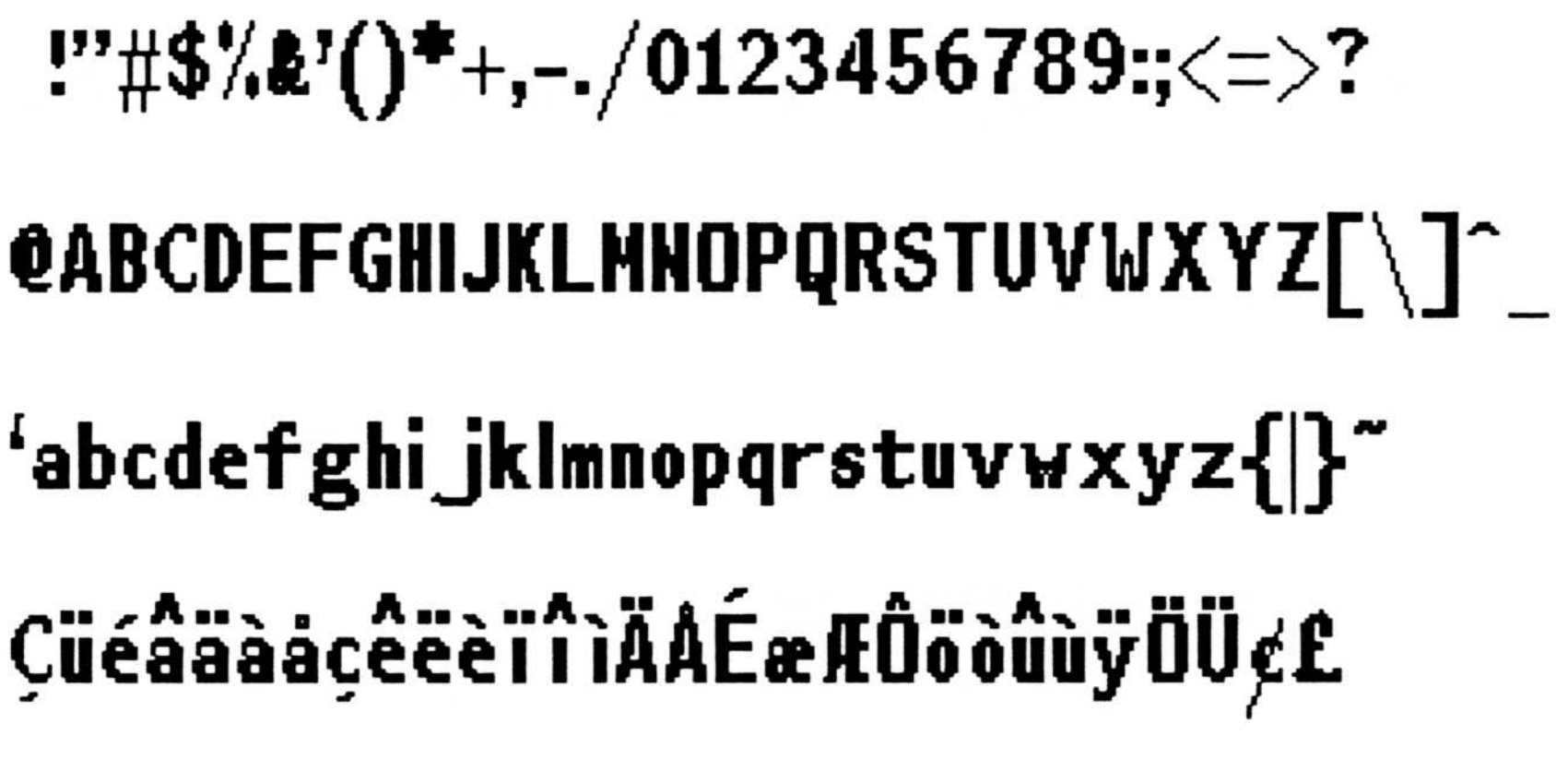


AHD711.FNT Shown: 3x
Cell width: 14 Cell height: 9

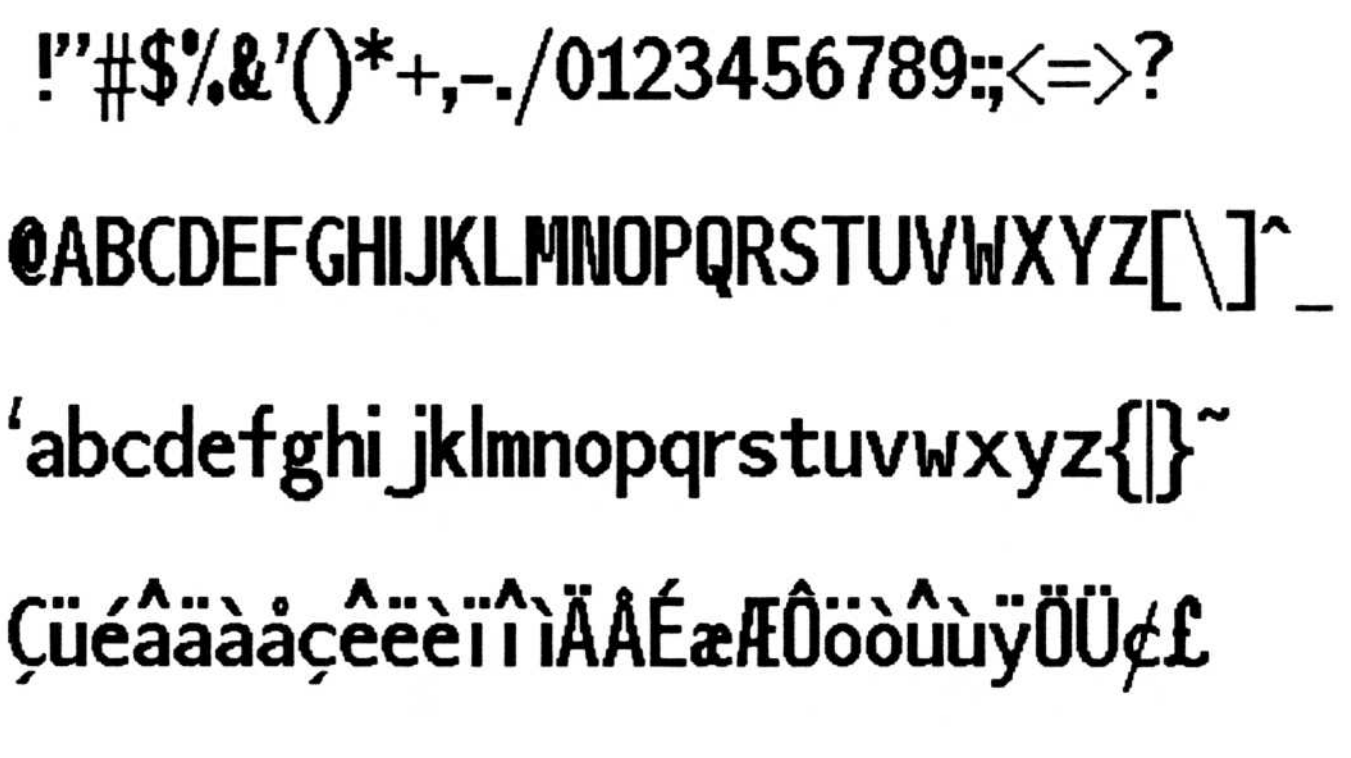
AHD712.FNT Shown: 2x
Cell width: 12 Cell height: 12



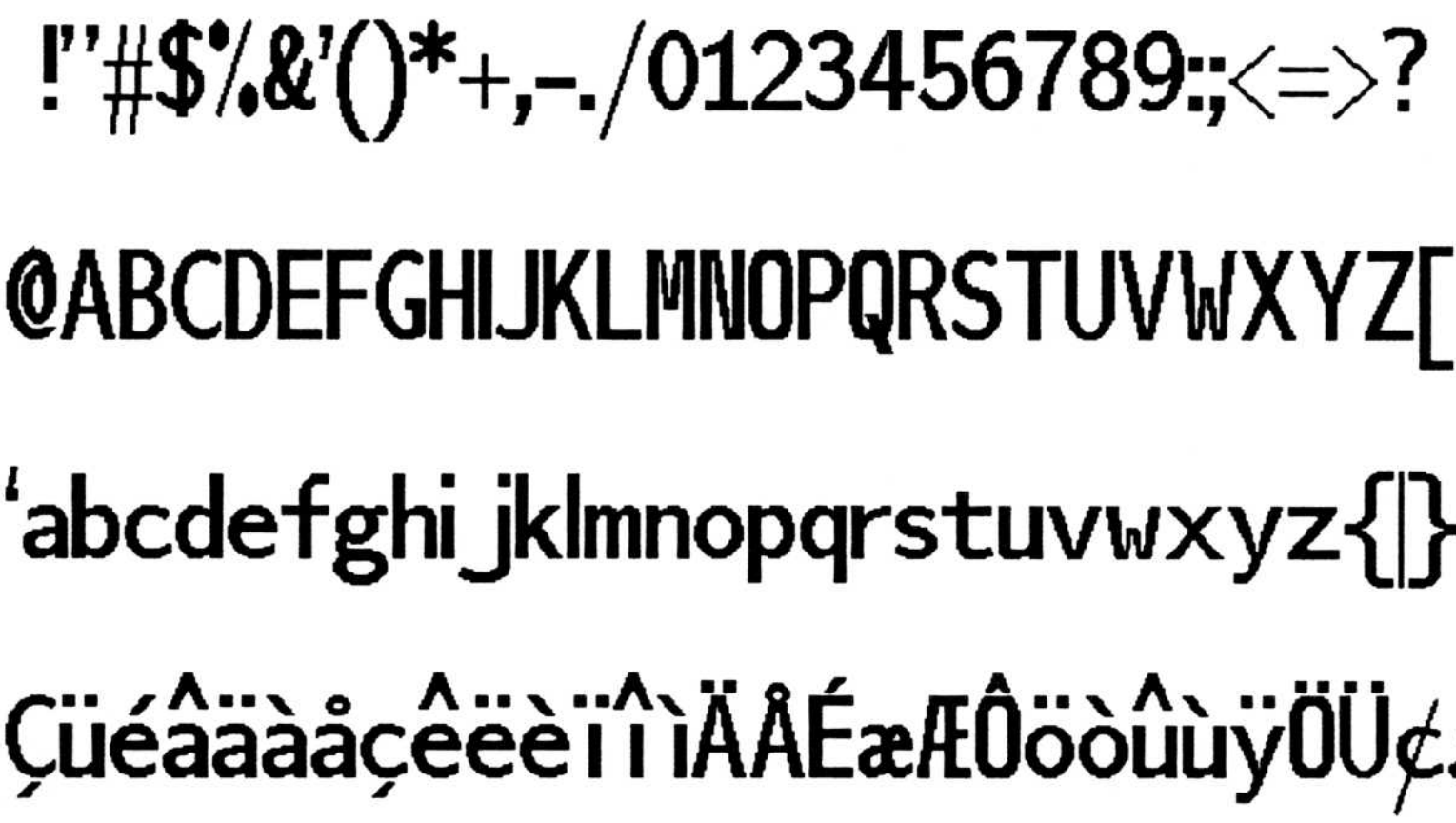
AHD713.FNT Shown: 2x
Cell width: 28 Cell height: 18



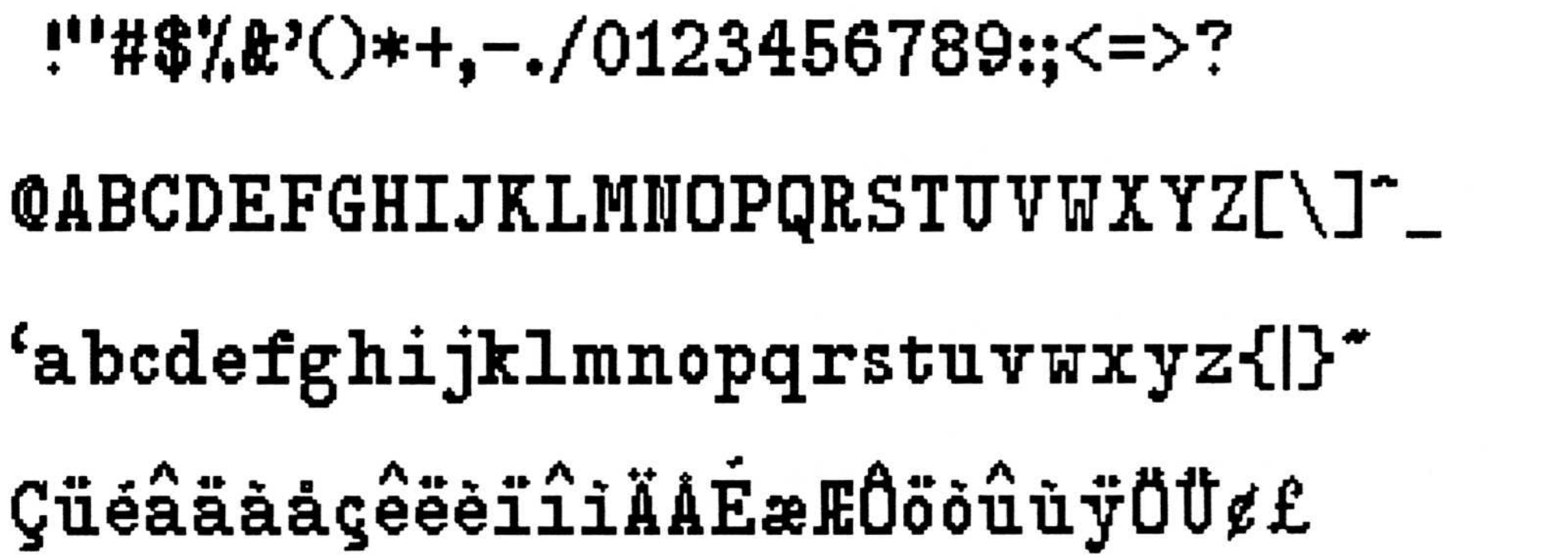
AHD720.FNT Shown: 2x
Cell width: 29 Cell height: 12



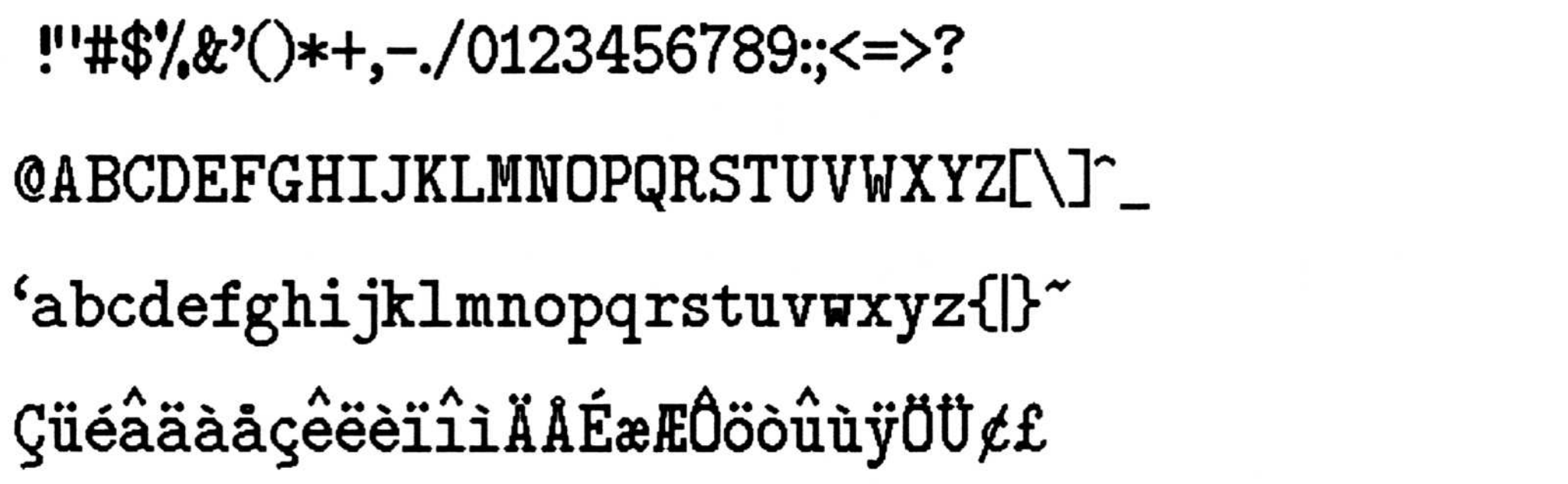
AHD721.FNT Shown: 1x
Cell width: 49 Cell height: 19



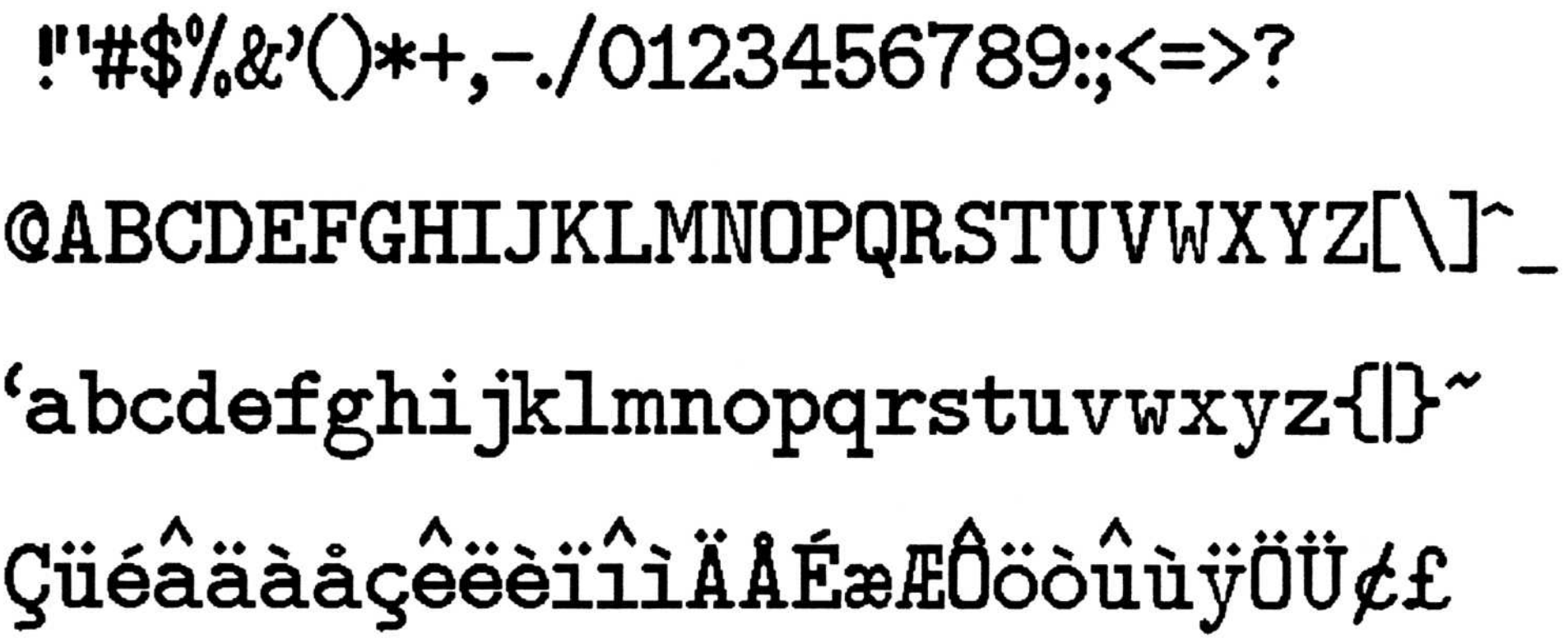
AHD722.FNT Shown: 1x
Cell width: 61 Cell height: 25



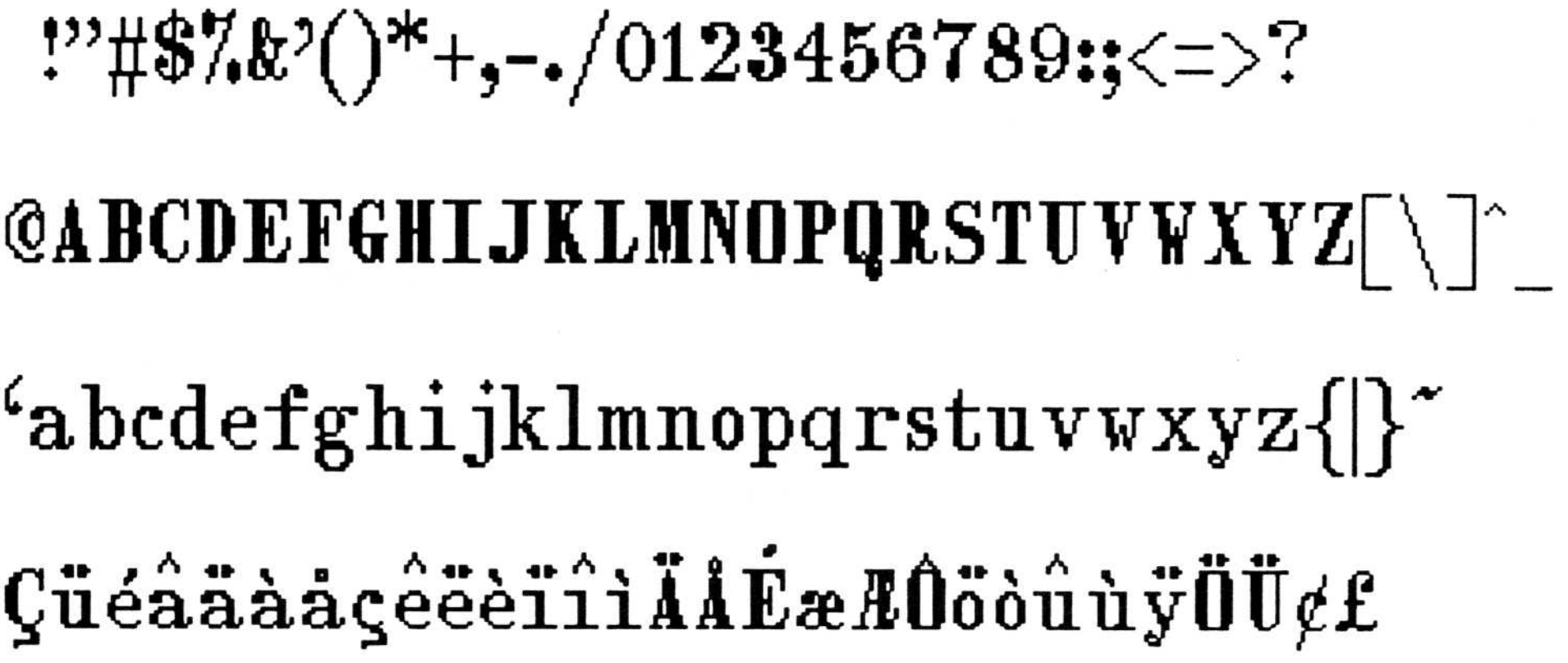
AHD730.FNT Shown: 2x
Cell width: 26 Cell height: 12



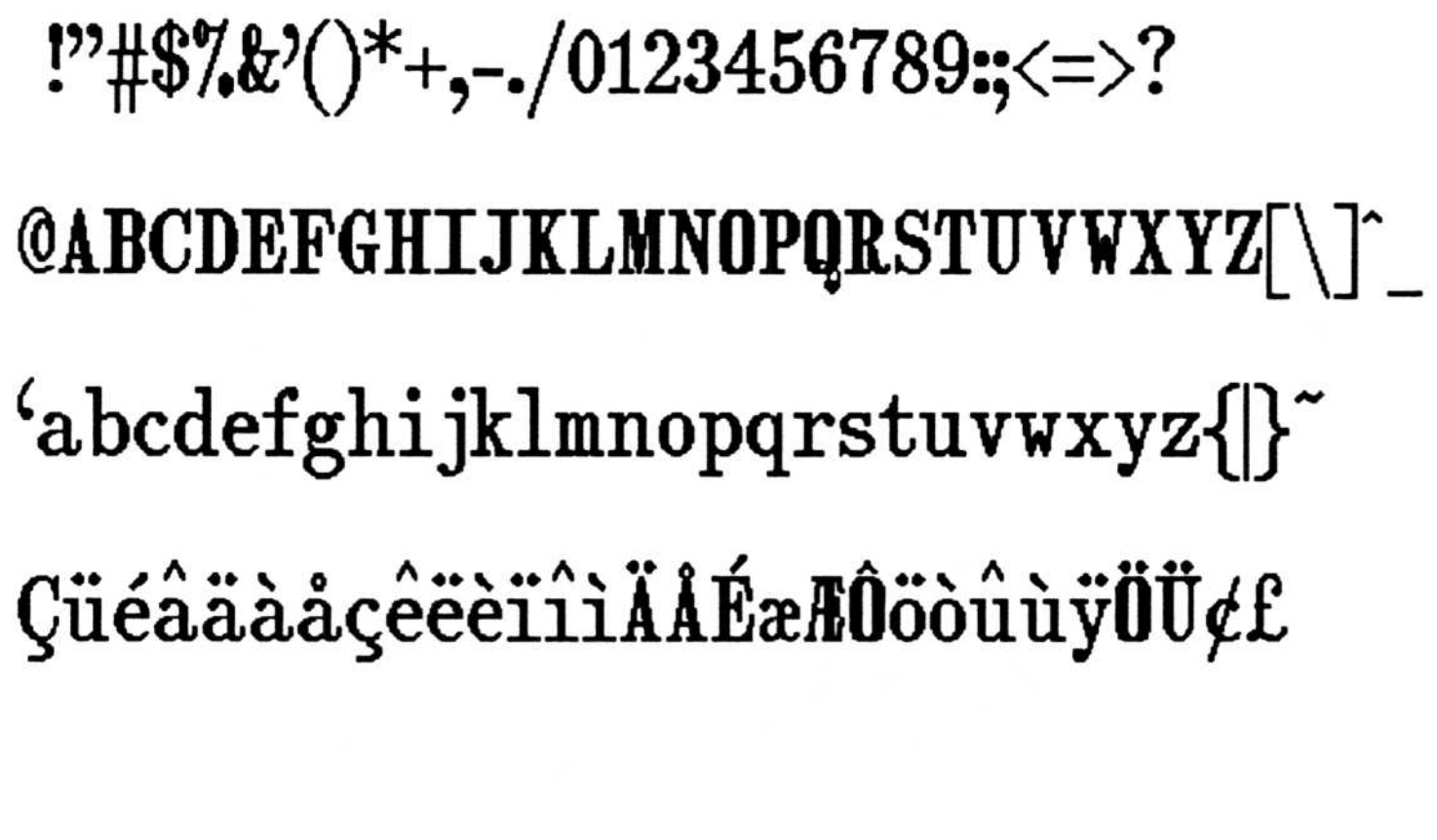
AHD731.FNT Shown: 1x
Cell width: 43 Cell height: 20



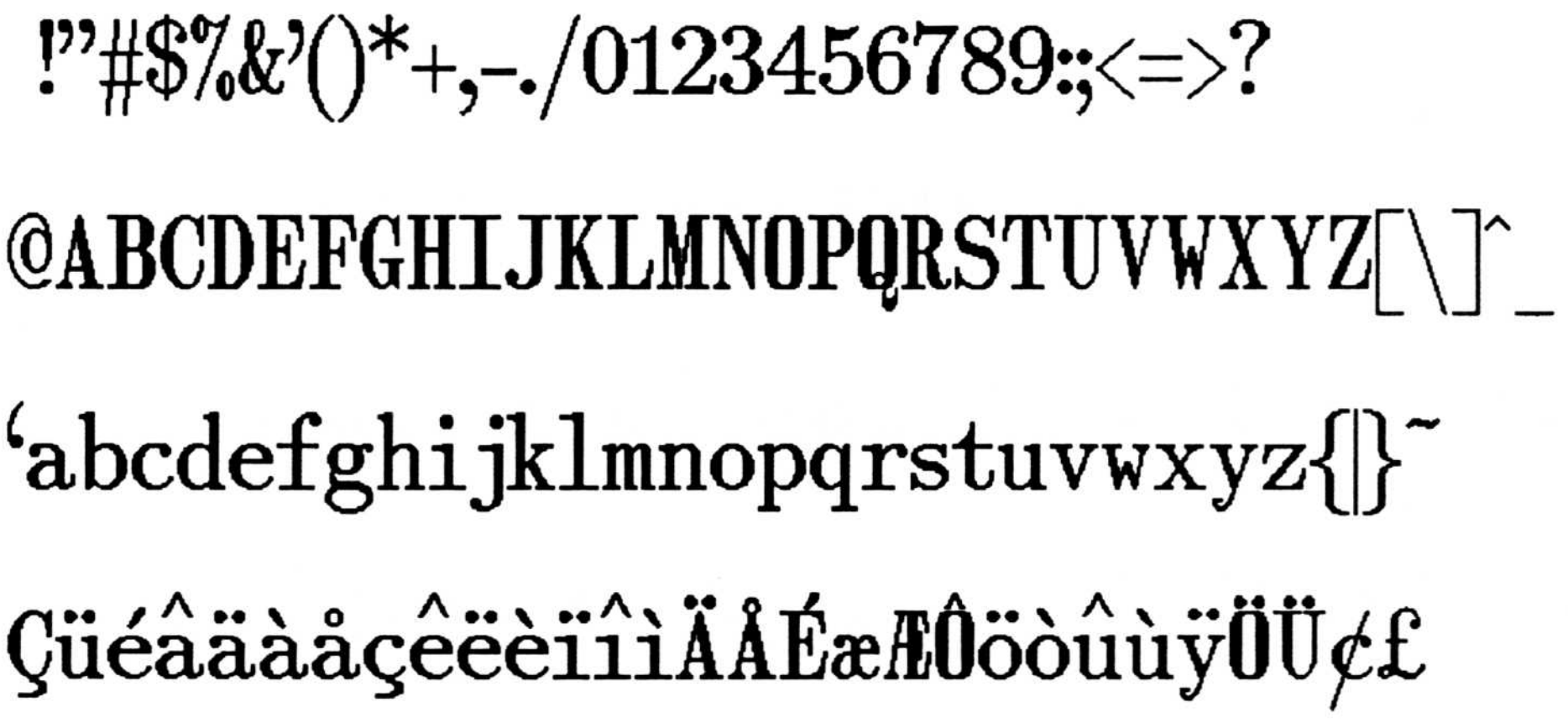
AHD732.FNT Shown: 1x
Cell width: 55 Cell height: 26



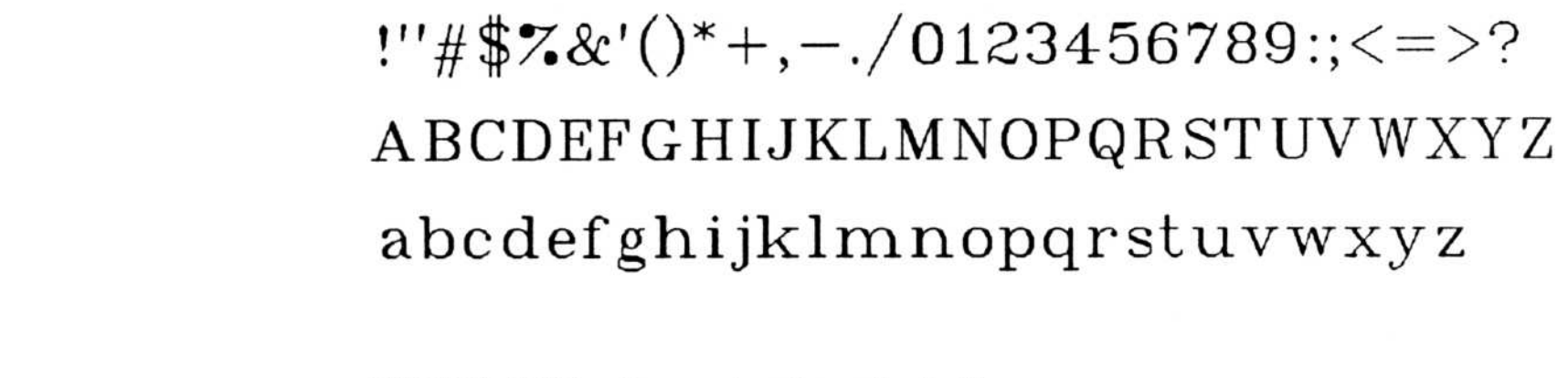
AHD740.FNT Shown: 2x
Cell width: 29 Cell height: 12



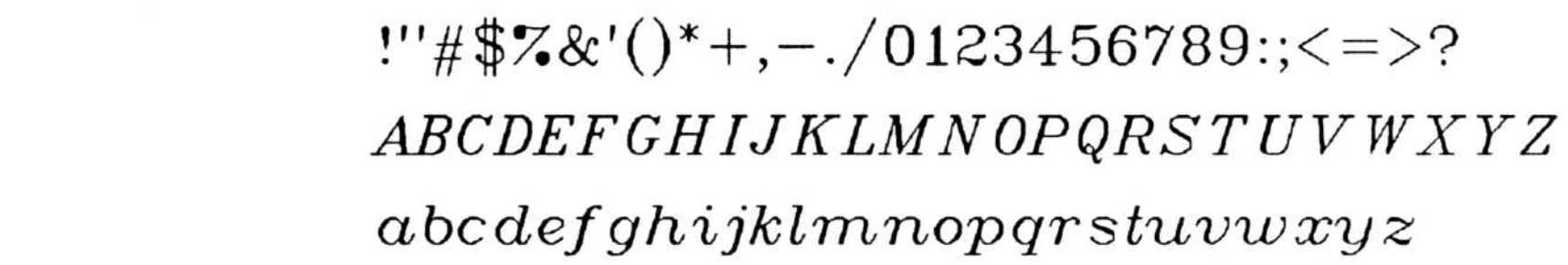
AHD741.FNT Shown: 1x
Cell width: 49 Cell height: 19



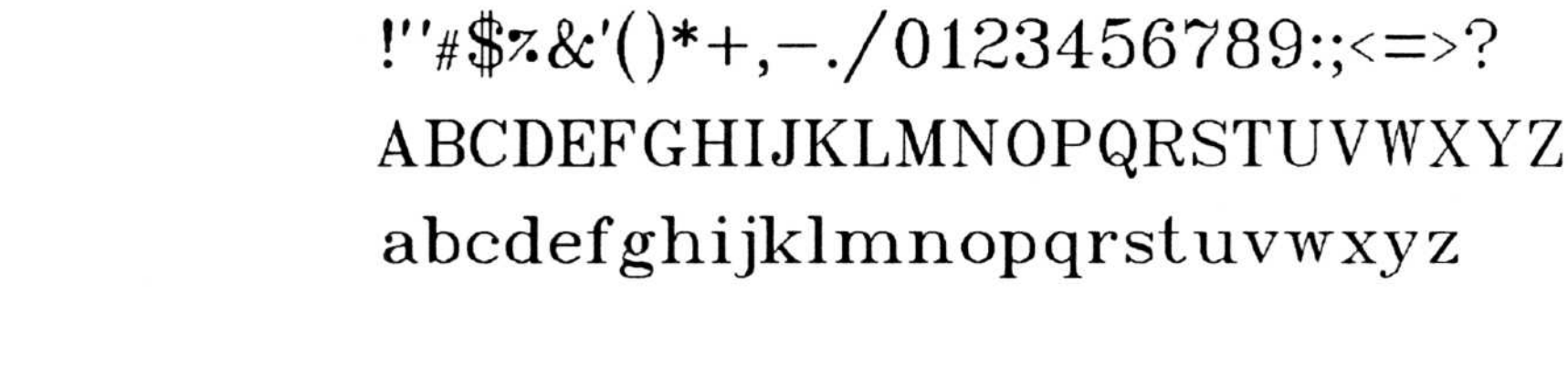
AHD742.FNT Shown: 1x
Cell width: 61 Cell height: 25



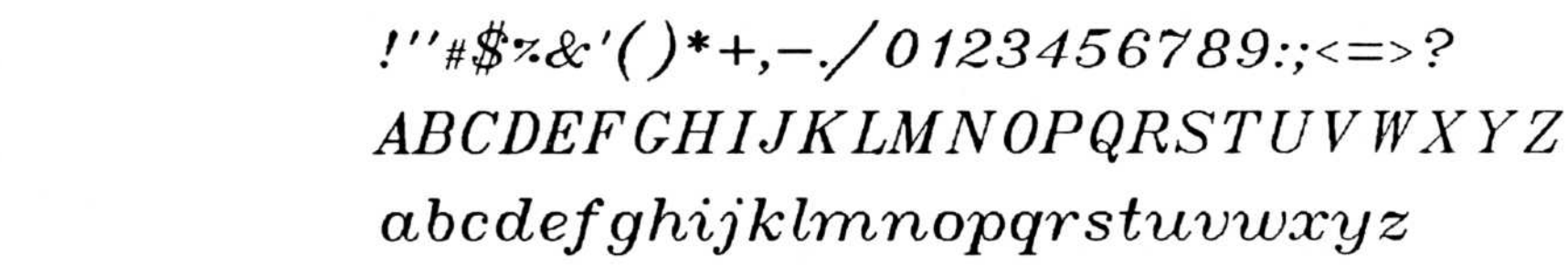
AHD102.FNT Aspect shown: 1.0
Offset: 24 Height: 62



AHD103.FNT Aspect shown: 1.0
Offset: 24 Height: 62

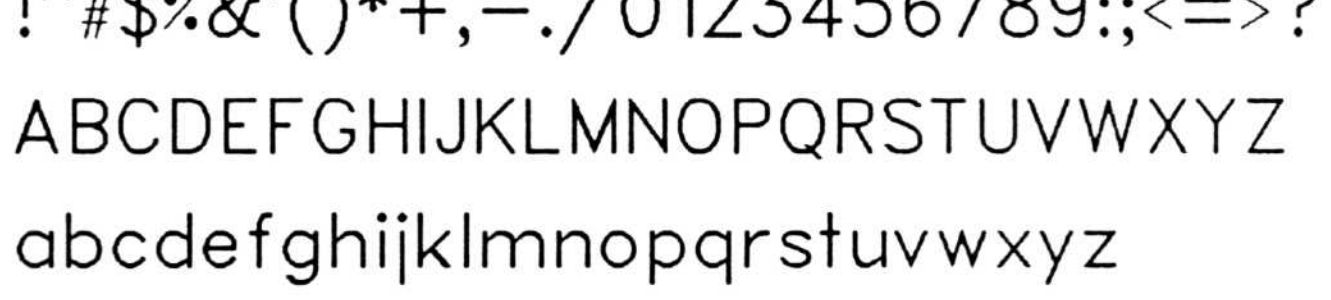


AHD104.FNT Aspect shown: 1.0
Offset: 27 Height: 90

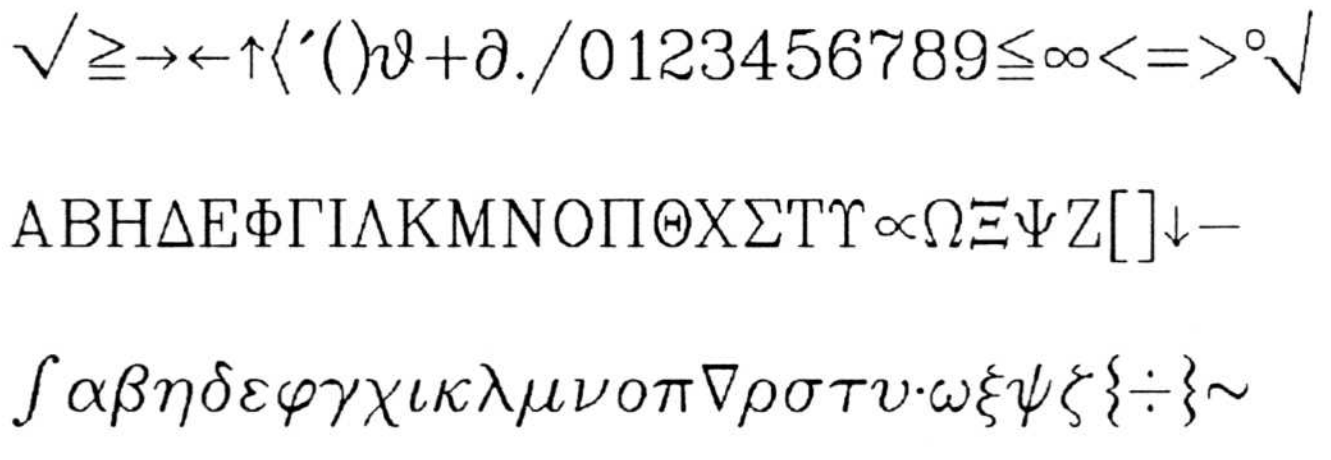


AHD105.FNT Aspect shown: 1.0
Offset: 27 Height: 90

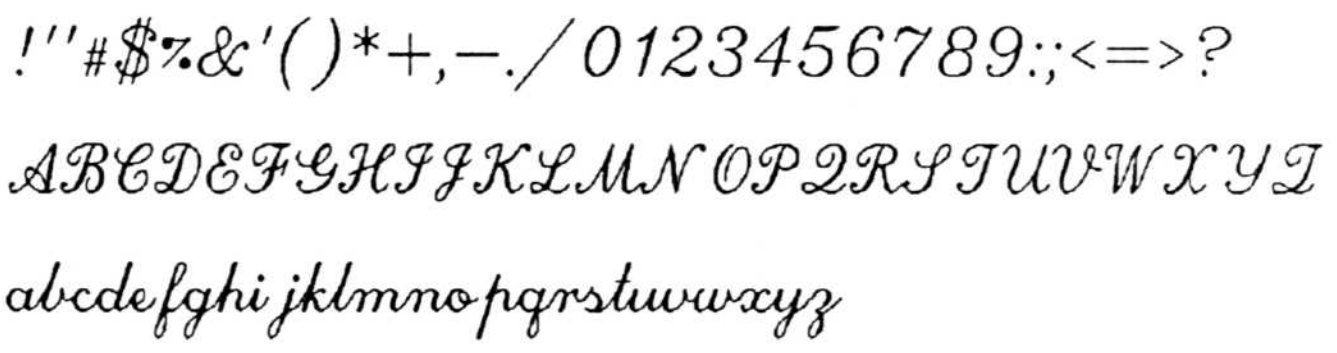
AHD106.FNT Aspect shown: 1.0
Offset: 27 Height: 90



AHD107.FNT Aspect shown: 1.0
Offset: 27 Height: 90



AHD108.FNT Aspect shown: 1.0
Offset: 60 Height: 102



AHD109.FNT Aspect shown: 1.0
Offset: 42 Height: 104

!''#$%&'()*+,-./0123456789:;<=>?
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

AHD111.FNT Aspect shown: 1.0
Offset: 27 Height: 90

!''#$%&'()*+,-./0123456789:;<=>?
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

AHD115.FNT Aspect shown: 1.0
Offset: 42 Height: 104

!"$%&'()*,-./0123456789:;?
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

AHDZ01.FNT Aspect shown: 1.0
Offset: 23 Height: 116

!"$%&'()*,-./0123456789:;?
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

AHDZ02.FNT Aspect shown: 1.0
Offset: 33 Height: 113

!"$%&'()*,-./0123456789:;?
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

AHDZ03.FNT Aspect shown: 1.0
Offset: 29 Height: 118

!"$%&'()*,-./0123456789:;?
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

AHD204.FNT Aspect shown: 1.0
Offset: 29 Height: 115

!"$%&'()*,-./0123456789:;?
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

AHD205.FNT Aspect shown: 1.0
Offset: 26 Height: 111

!"$%&'()*,-./0123456789:;?
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

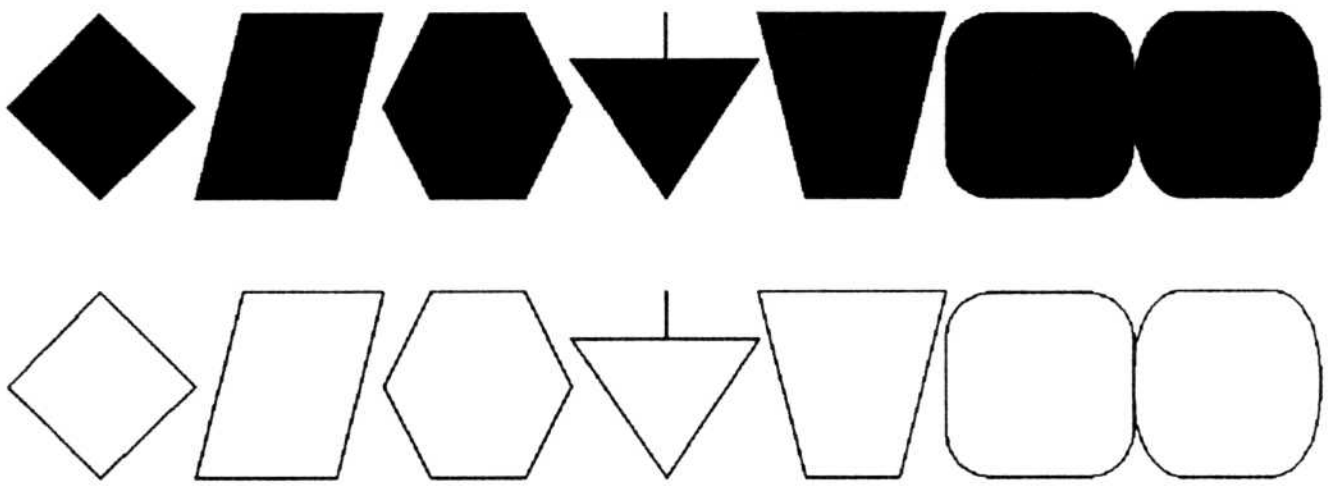
AHD206.FNT Aspect shown: 1.0
Offset: 30 Height: 115

!"$%&'()*,-./0123456789:;?
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

AHD207.FNT Aspect shown: 1.0
Offset: 29 Height: 118

!"$%&'()*,-./0123456789:;?
ABCDEFGHIJKLMNOPQRSTUVWXYZ

AHD208.FNT Aspect shown: 1.0
Offset: 12 Height: 114



AHD250.FNT Aspect shown: 1.0
Offset: 0 Height: 127

!''#$%&'()*+,-./0123456789:;<=>?
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
ÇüéâÂà¶ çêëèïî═ÀS§ÉÈÊôËÏ ûù•ÔÜ

AHD405.FNT Aspect shown: 1.0
Offset: 27 Height: 90

!''#$%&'()*+,-./0123456789:;<=>?
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
ÇüéâäàåçêëèïîìÄÅÉæÆôöòûùÿÖÜ

AHD406.FNT Aspect shown: 1.0
Offset: 27 Height: 100

Appendix C

This Appendix contains the supported graphics devices, printers, locators and their corresponding device drivers for use in the Dr. Halo IV Imaging Pak setup and configuration.

Graphics Devices

Device	Driver (.DSP)
AST EGA	AHDIBME
AST VGA Plus	AHDPARP AHDPARL
ATI EGA	AHDIBME
ATI VGA Wonder	AHDATIP AHDATIL
ATI 8514 VGA Ultra	AHDIBMI
AT&T 6300 Indigenous Graphics Board	AHDINDA
Cardinal Technology VGA 600	AHDCVGP AHDCVGL
Cardinal Technology VGA 700	AHDTL4P AHDTL4L
Compaq Sunburst VGA	AHDCMPQ
Diamond Star VGA	AHDTL4P AHDTL4L
Eagle II VGA	AHDIBMV AHDIBMP
Everex VGA	AHDIBMP AHDIBMV
Everex Viewpoint	AHDEVGP AHDEVGL
Genoa SuperVGA HiRes-10 (Model 5200-10)	AHDVPLN AHDVLIN
Genoa 5000 Series VGA (5400)	AHDVPLN AHDVLIN
Genoa 6000 Series VGA (6400)	AHDGVGP AHDGVGL
Headland/Video 7 VGA	AHDIBMP AHDIBMV
Headland/Video 7 1024i	AHDV7VP AHDHLVL
Headland/Video 7 VRAM VGA	AHDV7VP AHDV7VL
Hercules Monochrome Graphics	AHDHERC
IBM Adapter Interface	AHDIBMI

Device	Driver (.DSP)
IBM Color Graphics Adapter	AHDIBM AHDIBMG
IBM Enhanced Graphics Adapter (EGA)	AHDIBME
IBM PS/2 MCGA	AHDIBMP
IBM PS/2 VGA	AHDIBMV
IBM VGA	AHDIBMV AHDIBMP
IBM XGA	AHDIBMI
IBM 8514/A	AHDIBMI
King Phoenix VGA 800	AHDKPVP
LOGI EGA	AHDIBME
Oak Technologies VGA	AHDOAKP AHDOAKL
Orchid Designer VGA	AHDVPLN AHDVLIN
Orchid Prodesigner II	AHDTL4P AHDTL4L
Orchid Prodesigner VGA/e	AHDTL4P AHDTL4L
Paradise EGA	AHDIBME
Paradise VGA Professional	AHDPARP AHDPARL
Prism VGA	AHDPSMP AHDPSML
Quadram EGA	AHDIBME
Sigma Designs Sigma VGA	AHDIBMV AHDIBMP
STB VGA Extra/EM	AHDVPLN AHDVLIN
STB PowerGraph Ergo-VGA	AHDVPLN AHDVLIN
Tecmar EGA	AHDIBME
Tecmar VGA or VGA/AD	AHDTECL AHDTECP
TI TMS-34010 TIGA Version 2.0	AHDTIGA
Toshiba T3100	AHDTOSH
Trident 8900 VGA	AHDTRIP AHDTRIL

Device	Driver (.DSP)
Tseng Labs ET 3000	AHDVPLN AHDVLIN
Tseng Labs ET 4000	AHDTL4P AHDTL4L
Univision Scorpion	AHDSCOR
VESA 1.1 Compatibles	AHDVESL AHDVESP
Western Digital VGA 1024CX	AHDWDVL AHDWDVP
Wyse 700	AHDWYSE

If your graphics devices is not listed here or in the README file, you still may be able to use it in Dr. Halo IV. To do so, you need to know the SVGA chip set your board is using. (This will be listed in the manual accompanying the board, or on the board itself.) Once you've determined the chip set, you can select the appropriate driver during SETUP.

Printers

Printer	Driver (.PRT)
Canon LBP-8	AHDCNA2
Canon LBP III	AHDCNA2
Canon LBP IV	AHDCNA2
Citizen 9-pin B&W	AHDBW8
Citizen 9-pin Color	AHDCO8
Citizen 24-pin B&W	AHDBW24
Citizen 24-pin Color	AHDCO24
Dataproducts LZR 650	AHDLJTP
Epson-compatible 9-pin B&W	AHDBW8
Epson-compatible 9-pin Color	AHDCO8
Epson-compatible 24-pin B&W	AHDBW24
Epson-compatible 24-pin Color	AHDCO24
Epson LQ-2500 Series B&W	AHDBW24
Epson LQ-2500 Series Color	AHDCO24
Epson JX-80 B&W	AHDBW8
Epson JX-80 Color	AHDCO8
Epson MX-80	AHDBW
Fujitsu DL2400 B&W	AHDBW24
Fujitsu DL2400 Color	AHDCO24
Hewlett Packard DeskJet	AHDDJET
Hewlett Packard LaserJet+	AHDLJTP
Hewlett Packard LaserJet II, III	AHDLJTP
Hewlett Packard PaintJet	AHDPJET
Hewlett Packard PaintJet XL	AHDPJXL
Kodak Diconix 150 Plus	AHDDCNX
Mitsubishi G-500	AHDMITS
NEC P5XL B&W	AHDBW24
NEC P5XL Color	AHDCO24
Panasonic KX-P1524	AHDBW24
Panasonic KX-P4420	AHDPA44
Panasonic KX-4455	AHDPA44
Panasonic EPL-8543	AHD8543
Postcript Printer (parallel)	AHDPSCT

Printer	Driver (.PRT)
Postscript Printer (serial)	AHDPSCS
Ricoh PC Laser 6000	AHDRCPC
Seiko CH-5504	AHDSI04
Sharp JX-720	AHDSHRP
Sharp JX-730	AHDSH73
Star 9-pin B&W	AHDBW8
Star 9-pin Color	AHDCO8
Star 24-pin B&W	AHDBW24
Star 24-pin Color	AHDCO24
Tektronix 4696	AHDTK96
Tektronix Color Quick (4697)	AHDTK97
Toshiba P351	AHDTOSH
Toshiba P1351	AHDTOSH
Xerox 4020	AHDXJET

Locators

Locator	Driver (.LOC)
GTCO Digipad	AHDGTCI
Mouse	AHDMOU
Keyboard Driver	AHDKEY
Summagraphics Bit Pad One and compatibles	AHDBPOI
Summagraphics Tablet	AHDSDTI

Appendix D
Devices Requiring Special Considerations

This Appendix explains how to configure certain devices that require a good bit of explanation but which are too specific to include in the overall configuration information contained in Chapter 2.

Configuring Tablets

All of the components of the Dr. Halo IV Paint and Imaging Pak that require a pointing device can be configured to use a tablet as the locator.

To configure the Dr. Halo IV Paint and Imaging Pak with a tablet, do the following:

1. Use the SETUP utility to select the appropriate driver for the desired Paint and Imaging Pak's application(s). If the manufacturer and/or model number of your tablet is not listed in the locator choices, check your tablet's documentation for compatibility with one of the listed choices. Most tablets can be configured as a Summagraphics Bit Pad One, or one of the other supported tablets.

2. Test the tablet with Dr. Halo IV to see if additional configuring is needed. When running Dr. Halo IV on a tablet, you may notice a discrepancy between the drawing area on the tablet and the drawing surface on the screen. For instance, you may find that the locator will only reach a portion of the Dr. Halo screen (normally the bottom left corner), or that you can span the entire Dr. Halo screen while only covering a small part of the active area on your tablet. This is because the drivers support so many tablets of widely varying resolutions. The Paint and Imaging Pak applications support modifying locator parameters that correct the mapping of the drawing area to the screen dimensions.

3. Exit Dr. Halo IV. (If you cannot reach the STOP sign icon on the Dr. Halo screen, use <Ctrl-X> from the keyboard to quit Dr. Halo.) If the test is satisfactory, stop here.

4. Find out the dimensions of your tablet (refer to your tablet's user's guide). The dimensions required are the number of addressable points on the tablet surface (not the dimension in inches). If the dimensions are not specified directly by the tablet manufacturer, you may calculate them from the resolution (usually in lines per inch) and the dimensions in inches of the tablet. For instance, if your tablet is specified as having 500 lines per inch and the active surface is 8″ x 8″, your tablet has dimensions of 4000 x 4000.

5. Using a text editor, edit the file in your Dr. HALO IV directory called DRHALO.CNF. The line that begins -P refers to your locator. It should currently have only the driver name and the COM port in use. Add the locator dimensions following two -1 placeholders, so that your -P line looks similar to this:

   -Pahdsdti.loc,1,-1,-1,4000,4000

   (This example is for the Summagraphics MM Series driver, COM port 1, and the dimensions calculated above.)

6. (Optional) You may want to further adjust the locator dimensions. Your tablet's drawing surface may be square or taller than it is wide, but the screen that you are mapping it to is not. This means that to move one inch on the screen, you have to move the tablet stylus further vertically that you would to move horizontally. If you never do any tracing, this may not bother you, in which case you can skip this step.

   The screen's dimensions are always in a 4:3 ratio, so you may want to set up a drawing surface on the tablet with the same ratio. Normally, the horizontal dimension is the limiting factor in maintaining the 4:3 ratio, so calculate a new vertical dimension by dividing the horizontal dimension determined above by 4 and multiplying by 3:

   NewVertical = (Horizontal / 4) * 3

   You will then use the bottom portion of the tablet. For instance, with the square tablet mentioned above, you would be using the bottom 3/4 of the drawing area, and all of the width.

Configuring TIGA

Most TIGA drivers support quite a number of possible display modes. Depending on the implementation, you may need to select the TIGA display mode with the TIGAMODE utility supplied with your TIGA board and then configure all of the Dr. Halo IV applications to use mode 0.

In some cases all of the possible display modes are available (often too many to list in SETUP). In this case you may need to edit SETUP.CNF to list the resolution and mode numbers you are interested in. The TIGA mode number for each selection is listed just before the "ahdtiga.dsp" driver name in the SETUP.CNF.

Configuring the Keyboard as a Mouse

If you do not have a mouse or other pointing device, during Setup you can select the keyboard as your pointing device. The keyboard uses the cursor control keys and/or the numeric keypad to move the cursor. Note that the keypad supports eight directions of movement: up, down, left, and right (with the arrow keys). (Note: To use the keyboard as a pointing device, it must be chosen in setup.)

On almost all keyboards, the "z" key acts as the left button and the "c" acts as the right button. These keys are not case sensitive; that is, you can use upper or lower cases interchangeably.

Press 1 - 9 to select the speed of cursor movement. "1" is the slowest speed, "9" is the fastest.

Important: Keep in mind that when the keyboard is used as the pointing device, its normal text entry functions are disabled. To switch back and forth between pointing and using the keyboard for text entry, use the <Esc> key.

During Dr. Halo IV startup, the text entry function is needed when the screen prompt appears saying, "TYPE ANY KEY TO PROCEED."

First press the <Esc> key to switch to text entry mode. Then press any key. Press <Esc> once Dr. Halo IV has finished loading to return to pointing mode.

Display Adapters with Aspect Ratio Not 1.0

The issue of aspect ratio and the Virtual Page is touched upon briefly in the Tips and Tricks chapter of the manual. However, those of you who will be using the Virtual Page on display adapters that do not have an

aspect ratio of 1.0 should know more about how Dr. Halo handles this issue. If you are not familiar with the concept of aspect ratio, you may want to review the "Images and Aspect Ratio" section of the Tips and Tricks chapter before continuing.

When you run Dr. Halo on such a display adapter with the Virtual Page enabled, a message will be displayed indicating that the aspect ratio of the display has been changed to 1. The discussion that follows explains why this has been done and how that it affects editing within Dr. Halo.

As explained in Tips and Tricks, in order for the images generated by Dr. Halo to be aspect "correct", and therefore useful in most other applications, the aspect ratio of the Virtual Page is always set to 1. When the aspect ratio of the display is not 1, then Dr. Halo will add or subtract lines of pixels while in the virtual page mode to preserve the overall aspect of the image. Put simply, a circle on the Virtual Page will then look round on the screen.

It is important to understand, however, that Dr. Halo cannot change the aspect ratio of a screen pixel, but rather is performing a correction by adding or subtracting groups of pixels. Because of this, the Virtual Page representation is just that: a representation, and not a one-for-one exact copy of the image. For instance, it is possible that single-width horizontal lines that do exist in the image may not appear at all in the Virtual Page representation, or conversely, may appear to be fatter than a single pixel.

To view an exact pixel-to-pixel representation, you need to enter the default Dr. Halo editing mode. In this mode, you can perform pixel-by-pixel editing. However, anything drawn on the normal Dr. Halo drawing surface needs to be transfered to the Virtual Page without any loss - without scaling of any kind. For this reason, the aspect ratio of the main display adapter must also be 1. Since Dr. Halo is not performing aspect ratio correction, this has the effect of causing distortion of circles, squares, and text (all of which the eye is particularly sensitive to). The more closely the aspect ratio of the display approaches 1.0, the more the regular editing view of the image will match that of the Virtual Page representation.

Because of the apparent distortion in regular editing mode, you may want to do most of your editing in the Virtual Page mode. The Magnify icon (which is described above) allows you to do editing on the image at any magnification up to that in which every pixel of the active portion of the image is displayed.

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Dr. Halo IV®

Viewer Utility

Addendum

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1. Using the Viewer with SPIA scanners

Before using an SPIA-compliant scanner, please note the following:

1. The Viewer uses the SPIA.DLL driver to run with an SPIA-compliant scanner. In order for this driver to communicate with the scanner, you must first install the SPIA interface (using the driver provided with your scanner). Consult your scanner documentation for specific details.
2. Make sure that you have installed the desired scanner during initial setup of the program, or that you rerun setup and install the scanner. (See "Installation and Configuration" in Chapter 2 of the Guide to Operations).

   or

   Make sure that you select the desired scanner through the Options menu. (See "Scan," in the next section of this document).

2. Scan

The Scan command allows you to scan images directly into the Viewer. You can adjust the margins of the scanning area and scan a portion of an image. You can also adjust the scanner setup from within the Viewer through the Scan command.
You can add a scanner driver after the Viewer is installed. For details, see "Selecting a Scanner", below.

To scan an image,

1. **Prepare the scanner.** Make sure the scanner is attached and that you have prepared the image you wish to scan.
2. **Select the Scan command.** Open the File menu and select Scan. The Scan dialog box will appear, displaying your selected scanner, as well as options for adjusting Margins, or changing the scanner setup.
3. **(Optional) Adjust the Margins.** See below for detailed procedures in adjusting the margins before a scan.
4. **(Optional) Update Scanner Setup.** See below for detailed procedures in changing the scanner setup.
5. **(Optional) Select Convert to Gray.** This option will convert a halftone image into a gray scale image represented in 6x6 pixel cells. When you convert a halftoned image into a gray scale image,

each cell is reduced by 1/6th, and replaced by just one pixel representing the approximate original gray shade.

5. **Start the Scan.** Click on the Scan button. A progress indicator will appear. Press and hold the scan button on the side of the scanner and drag it slowly across the image to be scanned. The red light on top of the scanner should stay lit. If the light goes off, you may be moving too quickly. If, after scanning, the resulting image is distorted or has portions "dropped out," try rescanning at a slower speed.

Adjusting Scan Size

The Scanner Margins dialog box allows you to select the portion of the scanner's page that you wish to scan. You can adjust the margins of the image to be scanned by moving the handles of a box over a representative box of the image.

To adjust an image size then scan it,

1. **Prepare the scanner.** Make sure the scanner is attached and that you have prepared the image you wish to scan.
2. **Select the Scan command.** Open the File menu and select Scan. The Scan dialog box will appear.
3. **Select the Margins option.** Click on the Margins button in the Scan dialog box. The Margins dialog box will appear displaying a small window and the current margins (calculated in inches).

4. **(Optional) Adjust the margins.** Use the Frame handles to adjust the margins.
5. **Return to the Scan dialog box.** When the margins are the way you want them, click OK to return to the Scan dialog box.
6. **Begin the Scan.** When the Scan dialog box reappears, click on the Scan button. A progress indicator will appear. Press and hold the scan button on the side of the scanner and drag it slowly across the image to be scanned. The red light on top of the scanner should stay lit. If the light goes off, you may be moving too quickly. If, after scanning, the resulting image is distorted or has portions "dropped out," try rescanning at a slower speed.

Changing Scanner Setup

1. **Select the Scan command.** Open the File menu and select the Scan command. The Scan dialog box will appear.
2. **(Optional) Change the Scanner Setup.** Adjust the buttons on the handscanner to change the desired setup options. Refer to your scanner documentation for more information about scanner Setup.
3. **Confirm the update.** Click the Update button. The scanner information will be updated.
4. **Continue with the scan.** Continue with the scanning procedure as outlined in the

previous sections, or exit the Scan dialog box.

Selecting a Scanner

The Select Scanner Option of the Options Menu allows selection of the currently connected scanner.

To select a scanner:

1. **Select the Select Scanner option of the Options menu**
2. **Select the desired scanner.**

3. Merge

Select the Merge command from the Viewer's File Menu to automatically join together two partial images to form one whole image. The two parts must have an overlapping view of the middle part of the image.
The most common use of the Merge command is for joining together two halves of an image saved as two files. This happens often with hand scanners.
Merge allows you to join the image in the active workspace either to the image in another workspace or to an image file on disk.

How Merge Works

When you tell the Viewer to merge two image parts that have an overlapping area in the middle, it does the following:

1. It looks for features in the right side of the left image that are identical or nearly identical to features in the top left part of the right image (i.e., it looks in the area where the two images should overlap).
2. It aligns the points it has found to match, rotating the right image where necessary, vertically stretching or compressing the right image where necessary.
3. It displays the merged image in a new active workspace.

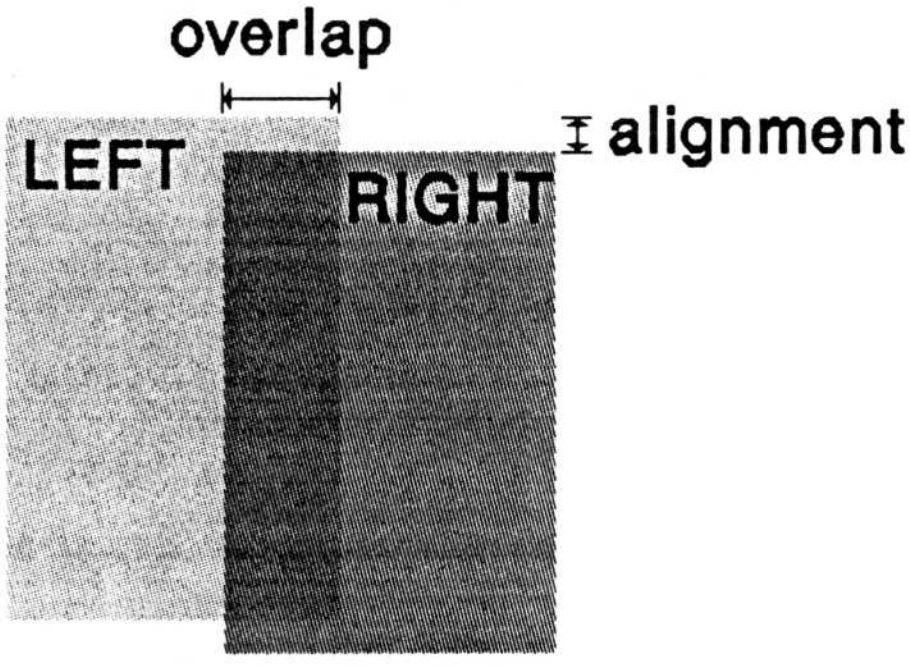
Merge Specifications

The following specifications, in inches, depend on the image dots per inch. As some applications are inconsistent about how DPI is handled, check the Image Info Dialog box to be certain of the DPI of your image parts.

Image Class: The images may be gray scale, true color, or bilevel; they may not be palette images or halftoned images.

Features: The overlapping areas must have enough distinct features in common (e.g., identical rows of "E"s will not merge properly, nor will solid gray in the overlapping area).

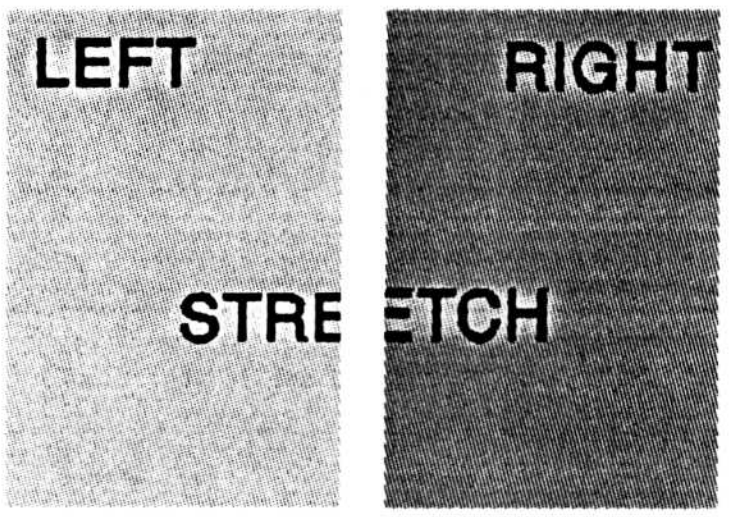
Overlap: The overlapping area (the darkest shade in Figure below) must be at least 0.5 inches wide and no more than 1.5 inches wide.



Merge Overlap and Alignment

Alignment: The difference in vertical alignment of the two image parts must be no more than 0.5 inches.

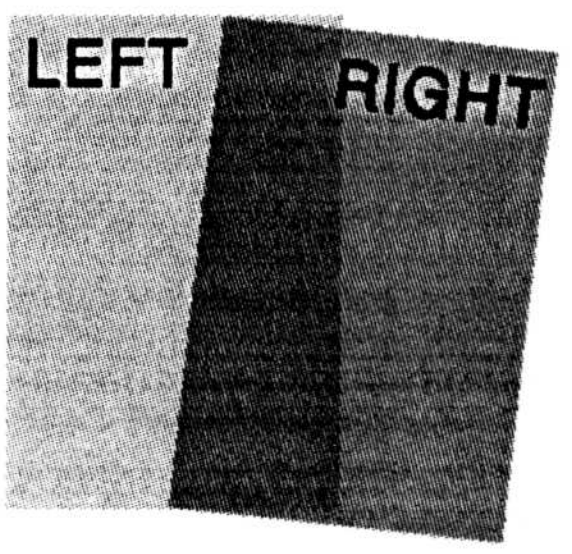
Stretch: The stretching of one image in relation to the other can be no more than 5%. In the following Figure, which follows, the amount of vertical stretch in the word "stretch" is 10% to make the effect appear more obvious.



Merge Stretch

Note: stretching can be introduced by hand scanners when lines are skipped due to uneven scanning speed.

Tilt: The difference in tilt between the two image parts can be no more than 6%, which is the difference shown in the Figure below which follows



Merge Tilt

Merge Procedures

To merge two image parts,

1. **Prepare the images.** Make sure the two image parts to be scanned are in workspaces on the screen.
2. **Select the left portion of the image.** Make the workspace that contains the left portion of the image the active workspace.
3. **Select the Merge Command.** Open the File menu and select Merge. The Merge dialog box will appear.
4. **(Optional) Select the right portion of the image.** If there are more than two active workspaces on the screen, select one containing the right portion of the image from the list in the center of the dialog box.
5. **(Optional) Select a Feature Size.** Merge compares features in the partial images. Usually, stay with the default feature size of Small. However, if you try to merge an image and you see an error message such as "unable to find points", try again with a different feature size. If most of the features in your image are small (12-point type or less), the feature size should be small. If most of the features are large (as in photographic images or 36-point type or above), a large feature size may work best. If your

feature sizes are in between, select Medium.

6. **Select Merge from the Merge Settings Dialog box.** A progress indicator is displayed while the two image parts are joined to form a new image.

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DR HALO IV UPGRADE

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VERSION: 1.00.25 DISK: 5.25

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